



Intra-European cooperation

compared to
international
collaboration



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Intra-European cooperation compared to international collaboration

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1. Introduction

The aim of this report is to analyze the evolution of international collaboration as witnessed by means of co-inventor data. Do European countries rely more on international inventor teams when developing technology and if so, is this increase mainly accounted for by cross-border cooperation of EU-27 countries?

This report uses information on the addresses of the inventors listed in EPO patents. We employ these data to study the extent and importance of cross-border technological collaborations.

More specifically, we report and discuss the frequency and importance of intra-EU27 collaborations and we compare them to the extent and the relevance of international collaborations with extra-EU countries. This informs us about the effect of the European Research Area: how important is the European Research Area in fostering research collaborations, in comparison to the more general globalisation trend that might drive cross-country collaboration efforts.

The main source of information for this report relates to datasets 12-22 and 26-28. The considered time period covers application years between 1980 and 2010, allowing for some trend analysis (with regression models).

2. Data sources and descriptive statistics

All patent data are extracted from the PATSTAT database (EPO Worldwide Patent Statistical Database). This database, administered by the European Patent Office (EPO), is developed in cooperation with the World Intellectual Property Organisation (WIPO), the OECD and Eurostat. It is designed to be used for statistical research, containing over 20 tables in a relational format. For each patent, PATSTAT provides information on detailed bibliographic data, applicant and inventor identities and addresses, citations to prior art (patent and non-patent references), technology domain classification. The full relational scheme is represented appendix 1 (PATSTAT relational diagram). The PERSON table (TLS206), which contains detailed information about inventors and applicants (name, address information), is of core relevance for extracting the indicators used throughout these analyses.

PATSTAT is published twice a year, in spring and in autumn. Our data are extracted from the Autumn 2012 version. Bearing in mind the 18 month time lag between application and publication of patents, our data cover patents that were applied before April 2011. Hence, data are presented until 2010, as this is the last year for which we have complete information. We consider applications from 1980 onwards, implying that we cover a 30 year time period. For each patent, the applicant country is identified, as well as the country of residence for each of its inventors. The analyses in this report relate to the overlap or differences between applicant and inventor countries, reflecting intra- or international collaboration patterns. On a more aggregated level, data are presented by world regions (areas). Applicant countries cover the following areas: EU27, EFTA, North America and Asia. No restriction is placed on the inventor countries. For patents allocated to more than 1 country (due to multiple applicants or inventors), a full fractional counting scheme is used¹.

All figures and statistics presented in this analytical report pertain to EPO applications. We were asked by the European Commission to provide a similar mapping for PCT patents. However, due to specificities of the registration procedure at WIPO, PCT patents imply non-trivial biases in the applicant and inventor country information. The fact that these specificities are time-related as well – and exogenous to actual trends in collaboration – casts doubt on the reliability of descriptives and statistical trend analyses regarding collaboration, if these are based on PCT data. In the following paragraphs, we further illustrate the bias that is present in PCT patent country information and that necessitates us to refrain from statistical trend analyses on PCT-based data.

As recently explained by Miguelez & Fink (2013²), the PCT system in principle records address information for applicants only, and not for inventors. Until recently however, US patent application procedures required all inventors in PCT applications to be listed as applicants as well. Thus, for all PCT applications with the US as designated state (country in which the applicant considers pursuing a patent), all inventors are listed as applicants and their address information is, in principle, available as applicant addresses. A large majority of PCT applications are affected by this phenomenon. This is not only due to the popularity of the US as designated state (it is the world's largest market). In addition, a

¹ E.g. for a patent that is applied for by 1 French applicant and by 2 German applicants, an equal flow weight of 1 is assigned to France and 1 to Germany.

² Miguelez, E., & Fink, C. (2013), "Measuring the international mobility of inventors: A New Database." WIPO Economics & Statistics Series, n°8.

change in PCT regulations in 2004 provided that all PCT applications automatically include all PCT member states as designated states, including the US, implying that the issue becomes even larger after 2004.

To illustrate the effect of this issue, we present the trend in a very basic statistic for PCT patents: the number of applicants and inventors per patent. If applicants and inventors are identified as separate entities on patent documents – as is the case for most patent offices – one would expect that the number of inventors per patent is higher than the number of applicants. If however, as is the case for the majority of PCT patents, all inventors are also registered as applicants, then the number of applicants is higher than the number of inventors; because the latter is a subgroup of the former. The table below depicts the difference between average number of applicants and inventors for PCT patents by application year (1995-2010).

APPY	Avg number of applicants per patent	Avg number of inventors per patent	Difference (applicants – inventors)
1995	2.4	2.39	0.01
1996	2.46	2.43	0.03
1997	2.54	2.47	0.07
1998	2.6	2.51	0.09
1999	2.62	2.52	0.1
2000	2.68	2.55	0.13
2001	2.76	2.59	0.17
2002	2.87	2.63	0.24
2003	2.99	2.67	0.32
2004	3.46	2.68	0.78
2005	3.5	2.66	0.84
2006	3.53	2.67	0.86
2007	3.55	2.66	0.89
2008	3.61	2.7	0.91
2009	3.67	2.74	0.93
2010	3.71	2.76	0.95

Table 1 - Evolution in the average number of applicants and inventors on PCT applications (application years 1980 – 2010)

We observe that, for PCT patents and from 1995 onwards, the average number of applicants per patent becomes higher than the average number of inventors per patent, and it is steadily increasing. Moreover, as can also be seen in the graph below, the extent of the difference displays an upward shock in 2004 onwards. This shock is clearly an artefact of the above outlined change in regulations and registration requirements at WIPO, rather than a shift in the patenting activity of applicants and inventors.

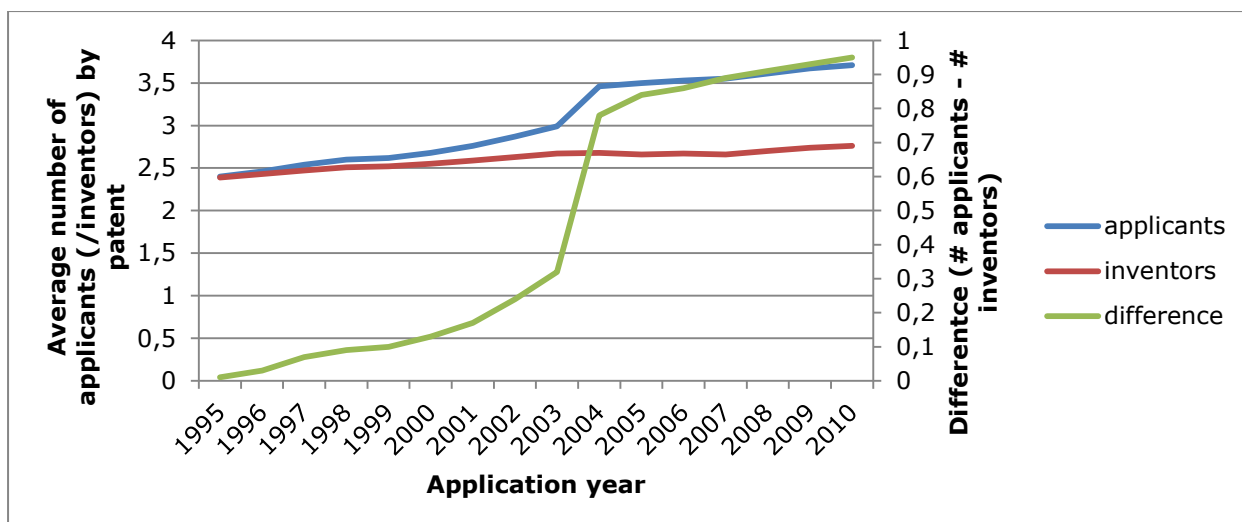


Figure 1 - Evolution in the average number of applicants and inventors on PCT applications (application years 1995 – 2010)

We further illustrate a second data artefact relating to the same change in the registration procedure. For PCT applications, address information is, as a general rule, only registered for applicants and not for inventors. This means that inventor address information is only available if the inventors are registered as applicants. When PCT regulations from 2004 onwards provided that all PCT applications automatically include all PCT member states (including US) as designated states, this led to a notable increase in the availability of inventor country information (see Miguelez & Fink, 2013), as inventors became applicants and address information is required for the latter. Hence, before 2004, the share of missing inventor country information was much higher, especially for US applicants. This is shown in table 2.1 and graph 2.1.

APPY	ASIA	EFTA	EU27	NORTHAMERICA
1995	7.11%	6.43%	12.77%	64.93%
1996	5.51%	9.97%	12.07%	63.02%
1997	6.11%	8.56%	11.87%	58.56%
1998	6.29%	11.80%	12.00%	58.79%
1999	8.49%	12.71%	12.33%	58.06%
2000	8.08%	9.44%	12.42%	55.47%
2001	8.63%	9.49%	11.16%	52.84%
2002	8.57%	8.71%	9.59%	50.60%
2003	8.54%	9.69%	7.59%	46.10%
2004	9.77%	2.52%	2.24%	13.52%
2005	11.20%	0.55%	0.85%	3.08%
2006	10.05%	0.40%	0.38%	0.94%
2007	8.99%	0.15%	0.39%	0.82%
2008	8.46%	0.32%	0.53%	0.69%
2009	9.31%	0.48%	0.65%	0.71%
2010	8.65%	0.32%	0.42%	0.62%

Table 2 - Evolution in the share of missing inventor country information in PCT patents, by area.

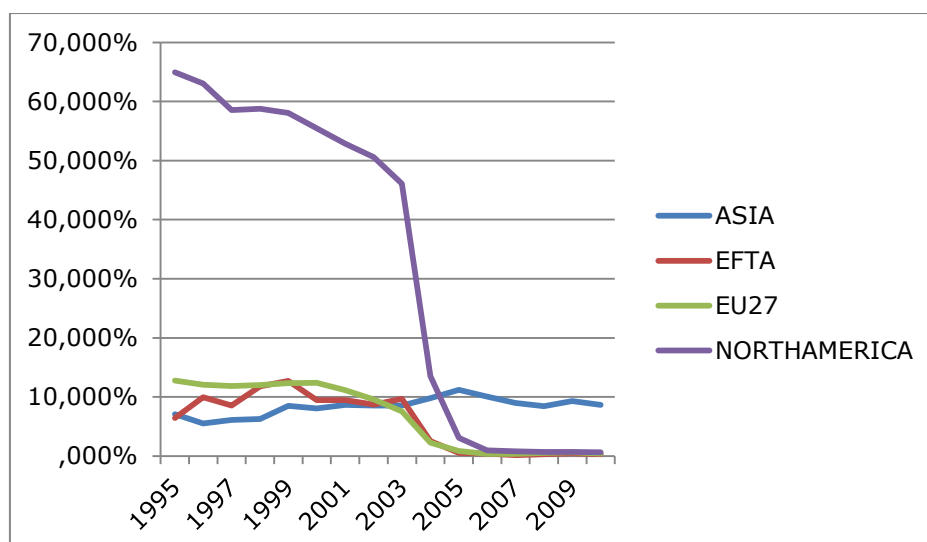


Figure 2 - Evolution in the share of missing inventor country information in PCT patents, by area.

Information on inventor countries is essential for the analyses executed in this report. The gaps in inventor country information for PCT patents, and the unstable evolution in the availability of this information, prevent us from drawing sound conclusions about trends in collaboration patterns for PCT applications.

So, due to specificities of the registration procedure at WIPO, PCT patents imply non-trivial biases in the applicant and inventor country information. These specificities are time-related – resulting from shifts in registration procedures – and exogenous to actual trends in collaboration. As a result, doubts are cast on the reliability of statistical trend analyses regarding collaboration, if these are based on PCT data. Any divergence from patterns that were observed for EPO patents cannot be interpreted properly, because the divergence is likely resulting from procedural difference in registration of applicants than inventors, rather than from differences in collaborative patterns. Hence, for the remainder of this report, we refrain from further statistical trend analysis on PCT indicators and we focus on EPO applications only.

In terms of overlap versus difference between applicant and inventor countries, three main categories are distinguished:

- | | |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| (1) DOMESTIC ONLY: | all inventors are from the same country as the applicant country (full overlap) |
| (2) DOMESTIC AND FOREIGN (HYBRID): | at least one inventor is from the same country as the applicant country, and at least one inventor is from a different country (partial overlap) |
| (3) FOREIGN ONLY: | all inventors are from a different country than the applicant country (no overlap) |

For patents with no full overlap between applicant and inventor countries – i.e. main categories (1) and (2) – three subcategories are further distinguished, based on the areas of the foreign inventor(s):

- a. Domestic area only: all foreign inventors are from the same area as the applicant
- b. Domestic and foreign area: at least one foreign inventor is from the same area as the applicant, and at least one foreign inventor is from a different area
- c. Foreign area only: all foreign inventors are from a different area than the applicant

Hence, for each application year within the considered period (1980-2010), and for each applicant country, 7 shares of patents are calculated. The overview is in table 3. In the following sections, we provide descriptions of the shares of patents in each of the categories, broken down by years, countries and areas.

Variable	Definition
APPY	Application year
APPLT_AREA	Applicant area: EU (EU27); EFTA (Iceland; Liechtenstein; Norway, Switzerland); NA(North America); Asia (China; Israel; India; Japan; South Korea)
APPLT_CTRY	Applicant country
(1) Share of DOMESTIC ONLY	Share of patents where all inventors are from the same country as the applicant.
(2) Share of DOMESTIC AND FOREIGN (HYBRID)	Share of patents where at least one inventor is from the same country as the applicant, and at least one inventor is from a different country.
(2a) HYBRID_domestic area only	Share of patents where at least one inventor is from the same country as the applicant, and at least one inventor is from a different country. Moreover: all foreign inventors are from the same area as the applicant.
(2b) HYBRID_domestic and foreign area	Share of patents where at least one inventor is from the same country as the applicant, and at least one inventor is from a different country. Moreover: at least one foreign inventor is from the same area as the applicant, and at least one foreign inventor is from a different area.
(2c) HYBRID_foreign area only	Share of patents where at least one inventor is from the same country as the applicant, and at least one inventor is from a different country. Moreover: all foreign inventors are from a different area than the applicant.
(3) Share of FOREIGN ONLY	Share of patents where all inventors are from a different country than the applicant.
(3a) FOREIGN_domestic area only	Share of patents where all inventors are from a different country than the applicant. Moreover: all (foreign) inventors are from the same area as the applicant.
(3b) FOREIGN_domestic and foreign area	Share of patents where all inventors are from a different country than the applicant. Moreover: at least one (foreign) inventor is from the same area as the applicant, and at least one (foreign) inventor is from a different area.
(3c) FOREIGN_foreign area only	Share of patents where all inventors are from a different country than the applicant. Moreover: all (foreign) inventors are from a different area than the applicant.

Table 3 – Overview of variables

2.1 Descriptives by world region (area)

2.1.1 Domestic and foreign inventions

In this section, descriptives are presented whereby applicant countries are aggregated to the areas EU27, EFTA, North America and Asia. The first set of descriptives covers, for each considered area, the number and share of patents in the three main categories: (1) DOMESTIC ONLY, where all inventors are from the same country as the applicant country; (2) DOMESTIC

AND FOREIGN (HYBRID), where at least one inventor is from the same country as the applicant country, and at least one inventor is from a different country; and (3) FOREIGN ONLY, where all inventors are from a different country than the applicant country. Absolute numbers (table 4a) and shares (table 4b) are provided by application year, for the period 1980 to 2010.

APPY	EU DOMESTIC ONLY	EU DOMESTIC +FOREIGN	EU FOREIGN ONLY	EFTA DOMESTIC ONLY	EFTA DOMESTIC +FOREIGN	EFTA FOREIGN ONLY	NA DOMESTIC ONLY	NA DOMESTIC +FOREIGN	NA FOREIGN ONLY	Asia DOMESTIC ONLY	Asia DOMESTIC +FOREIGN	Asia FOREIGN ONLY
1980	10454	261	727	886	89	282	5284	109	423	1679	11	7
1981	12962	331	835	1027	95	332	6711	160	556	2804	14	21
1982	13799	367	1120	1043	112	396	7292	169	603	3819	26	20
1983	14606	397	1131	1132	100	427	8955	141	610	4247	34	37
1984	17144	438	1282	1297	137	421	9976	218	712	5302	39	50
1985	17522	565	1505	1314	155	491	10430	262	720	6336	51	47
1986	19662	625	1699	1288	133	498	11262	314	789	6574	65	51
1987	20708	731	1722	1332	178	505	11676	295	815	7500	83	51
1988	23048	859	2213	1471	218	523	12848	423	963	9523	94	81
1989	24878	981	2492	1578	209	623	14305	536	1132	11138	115	92
1990	26256	1226	2520	1673	254	649	16412	632	1255	13187	159	155
1991	23046	994	2320	1472	252	604	16104	644	1431	12915	140	151
1992	23915	1229	2548	1555	254	651	16770	750	1428	11931	174	212
1993	23669	1209	2504	1571	251	646	16767	919	1539	11132	163	266
1994	24073	1355	2725	1446	271	630	17330	1025	1665	11366	162	239

APPY	EU DOMESTIC ONLY	EU DOMESTIC +FOREIGN	EU FOREIGN ONLY	EFTA DOMESTIC ONLY	EFTA DOMESTIC +FOREIGN	EFTA FOREIGN ONLY	NA DOMESTIC ONLY	NA DOMESTIC +FOREIGN	NA FOREIGN ONLY	Asia DOMESTIC ONLY	Asia DOMESTIC +FOREIGN	Asia FOREIGN ONLY
1995	25279	1585	3012	1486	344	693	18363	1181	2027	11389	224	234
1996	26509	1756	3218	1550	373	825	20434	1355	2161	13044	242	335
1997	30414	2174	3625	1836	442	968	21774	1580	2536	14917	257	345
1998	34619	2567	3989	2035	501	1040	24261	2052	3023	16268	359	445
1999	37137	2928	4463	2080	506	1231	26301	2261	3373	17778	418	600
2000	40798	3303	5210	2249	633	1386	28194	2539	3745	20532	481	635
2001	41845	3807	5813	2343	722	1606	28433	2811	3988	23786	484	676
2002	41610	4016	5965	2267	717	1777	27957	2787	3573	22666	540	718
2003	41209	4112	7040	2341	706	1845	29277	2874	3527	23990	656	816
2004	42474	4189	7368	2427	782	1924	29591	3061	3832	26529	617	983
2005	44106	4637	7626	2543	950	2120	31228	3362	3746	28539	675	982
2006	44884	4795	8074	2621	1034	2359	32033	3488	3701	28903	764	1059
2007	46185	4962	7863	2602	983	2434	29670	3294	3524	28346	666	1096
2008	45297	4907	7863	2509	992	2531	27238	3159	3276	27868	660	1054
2009	42726	4491	7237	2514	910	2317	25898	2847	2845	25516	578	827
2010	34322	3413	5290	2134	716	1697	18861	2160	2112	20027	462	721
Sum	915156	69210	120999	55622	14019	34431	601635	47408	65630	469551	9413	13006

Table 4a - Evolution in the number of domestic inventions, foreign inventions, and hybrid (domestic & foreign) inventions by area.

APPY	EU DOMESTIC ONLY	EU DOMESTIC +FOREIGN	EU FOREIGN ONLY	EFTA DOMESTIC ONLY	EFTA DOMESTIC +FOREIGN	EFTA FOREIGN ONLY	NA DOMESTIC ONLY	NA DOMESTIC +FOREIGN	NA FOREIGN ONLY	Asia DOMESTIC ONLY	Asia DOMESTIC +FOREIGN	Asia FOREIGN ONLY
1980	91.37%	2.28%	6.35%	70.49%	7.08%	22.43%	90.85%	1.87%	7.27%	98.94%	0.65%	0.41%
1981	91.75%	2.34%	5.91%	70.63%	6.53%	22.83%	90.36%	2.15%	7.49%	98.77%	0.49%	0.74%
1982	90.27%	2.40%	7.33%	67.25%	7.22%	25.53%	90.43%	2.10%	7.48%	98.81%	0.67%	0.52%
1983	90.53%	2.46%	7.01%	68.23%	6.03%	25.74%	92.26%	1.45%	6.28%	98.36%	0.79%	0.86%
1984	90.88%	2.32%	6.80%	69.92%	7.39%	22.70%	91.47%	2.00%	6.53%	98.35%	0.72%	0.93%
1985	89.43%	2.88%	7.68%	67.04%	7.91%	25.05%	91.40%	2.30%	6.31%	98.48%	0.79%	0.73%
1986	89.43%	2.84%	7.73%	67.12%	6.93%	25.95%	91.08%	2.54%	6.38%	98.27%	0.97%	0.76%
1987	89.41%	3.16%	7.43%	66.10%	8.83%	25.06%	91.32%	2.31%	6.37%	98.24%	1.09%	0.67%

APPY	EU DOMESTIC ONLY	EU DOMESTIC +FOREIGN	EU FOREIGN ONLY	EFTA DOMESTIC ONLY	EFTA DOMESTIC +FOREIGN	EFTA FOREIGN ONLY	NA DOMESTIC ONLY	NA DOMESTIC +FOREIGN	NA FOREIGN ONLY	Asia DOMESTIC ONLY	Asia DOMESTIC +FOREIGN	Asia FOREIGN ONLY
1988	88.24%	3.29%	8.47%	66.50%	9.86%	23.64%	90.26%	2.97%	6.77%	98.20%	0.97%	0.84%
1989	87.75%	3.46%	8.79%	65.48%	8.67%	25.85%	89.56%	3.36%	7.09%	98.18%	1.01%	0.81%
1990	87.51%	4.09%	8.40%	64.95%	9.86%	25.19%	89.69%	3.45%	6.86%	97.67%	1.18%	1.15%
1991	87.43%	3.77%	8.80%	63.23%	10.82%	25.95%	88.59%	3.54%	7.87%	97.80%	1.06%	1.14%
1992	86.36%	4.44%	9.20%	63.21%	10.33%	26.46%	88.51%	3.96%	7.54%	96.87%	1.41%	1.72%
1993	86.44%	4.42%	9.14%	63.65%	10.17%	26.18%	87.21%	4.78%	8.01%	96.29%	1.41%	2.30%
1994	85.51%	4.81%	9.68%	61.61%	11.55%	26.84%	86.56%	5.12%	8.32%	96.59%	1.38%	2.03%
1995	84.61%	5.31%	10.08%	58.90%	13.63%	27.47%	85.13%	5.47%	9.40%	96.13%	1.89%	1.98%
1996	84.20%	5.58%	10.22%	56.40%	13.57%	30.02%	85.32%	5.66%	9.02%	95.76%	1.78%	2.46%
1997	83.99%	6.00%	10.01%	56.56%	13.62%	29.82%	84.10%	6.10%	9.80%	96.12%	1.66%	2.22%
1998	84.08%	6.23%	9.69%	56.91%	14.01%	29.08%	82.70%	6.99%	10.30%	95.29%	2.10%	2.61%
1999	83.40%	6.58%	10.02%	54.49%	13.26%	32.25%	82.36%	7.08%	10.56%	94.58%	2.22%	3.19%
2000	82.74%	6.70%	10.57%	52.69%	14.83%	32.47%	81.77%	7.36%	10.86%	94.84%	2.22%	2.93%
2001	81.31%	7.40%	11.30%	50.16%	15.46%	34.38%	80.70%	7.98%	11.32%	95.35%	1.94%	2.71%
2002	80.65%	7.78%	11.56%	47.62%	15.06%	37.32%	81.47%	8.12%	10.41%	94.74%	2.26%	3.00%
2003	78.70%	7.85%	13.45%	47.85%	14.43%	37.71%	82.06%	8.06%	9.89%	94.22%	2.58%	3.20%
2004	78.61%	7.75%	13.64%	47.28%	15.23%	37.48%	81.11%	8.39%	10.50%	94.31%	2.19%	3.49%
2005	78.25%	8.23%	13.53%	45.31%	16.92%	37.77%	81.46%	8.77%	9.77%	94.51%	2.24%	3.25%
2006	77.72%	8.30%	13.98%	43.58%	17.19%	39.23%	81.67%	8.89%	9.44%	94.07%	2.49%	3.45%
2007	78.27%	8.41%	13.32%	43.23%	16.33%	40.44%	81.31%	9.03%	9.66%	94.15%	2.21%	3.64%
2008	78.01%	8.45%	13.54%	41.59%	16.45%	41.96%	80.89%	9.38%	9.73%	94.21%	2.23%	3.56%
2009	78.46%	8.25%	13.29%	43.79%	15.85%	40.36%	81.98%	9.01%	9.01%	94.78%	2.15%	3.07%
2010	79.77%	7.93%	12.30%	46.93%	15.75%	37.32%	81.53%	9.34%	9.13%	94.42%	2.18%	3.40%
AVG	82.79%	6.26%	10.95%	53.45%	13.47%	33.08%	84.18%	6.63%	9.18%	95.44%	1.91%	2.64%

Table 4b - Evolution in the share of domestic inventions, foreign inventions, and hybrid (domestic & foreign) inventions by area.

For each main category of inventions, the evolutions in shares are graphically represented by area in the following graphs. It can be seen in the tables and graphs that – for each area – the share of domestic inventions declines slightly over the considered time period, which is mirrored by a slight increase in the share of

patents with at least one foreign inventor. This decrease in domestic and increase in foreign patents is most outspoken for EFTA countries, which display a notably lower share in domestic inventions throughout the considered time period.

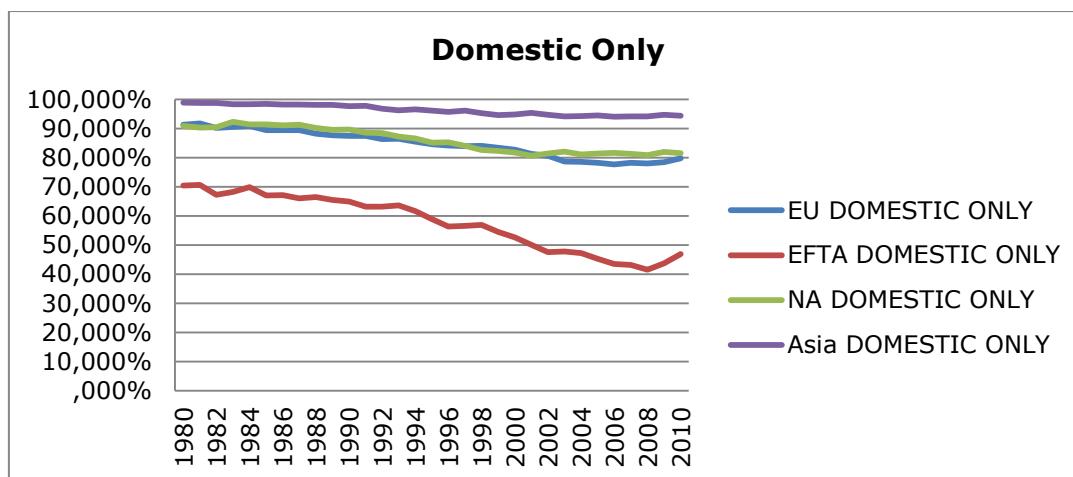


Figure 3 - Evolution in the share of domestic inventions by areas.

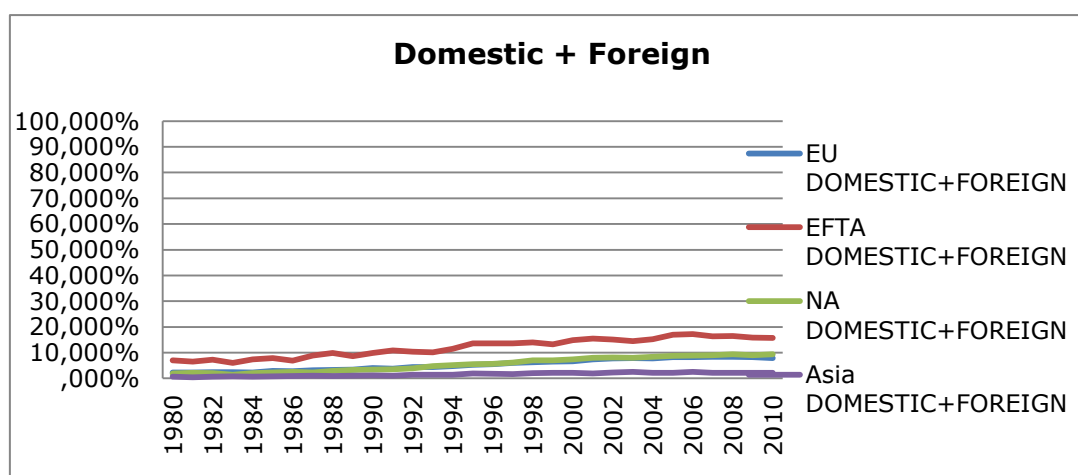


Figure 4 - Evolution in the share of hybrid inventions by area.

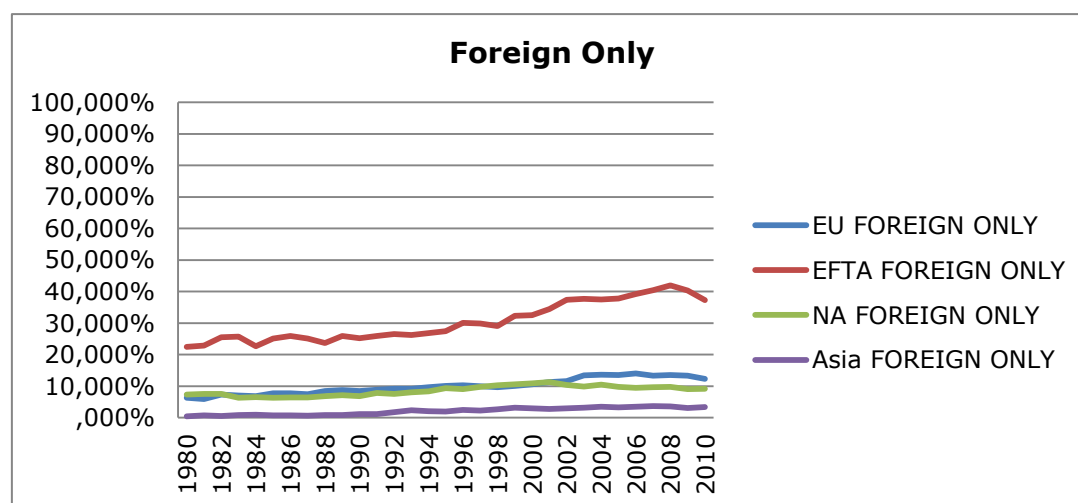


Figure 5 - Evolution in the share of foreign inventions by area.

Figure 6 below gives the overview of the shares by area, aggregated over the considered time period. For each of the areas, domestic inventions represent the lion share. Compared to the other areas, this share is considerably lower for EFTA countries, which have 33% foreign inventions. Asia has the highest share of domestic inventions (more than 95%). The figures and trends for EU27 are very similar to those for North America.

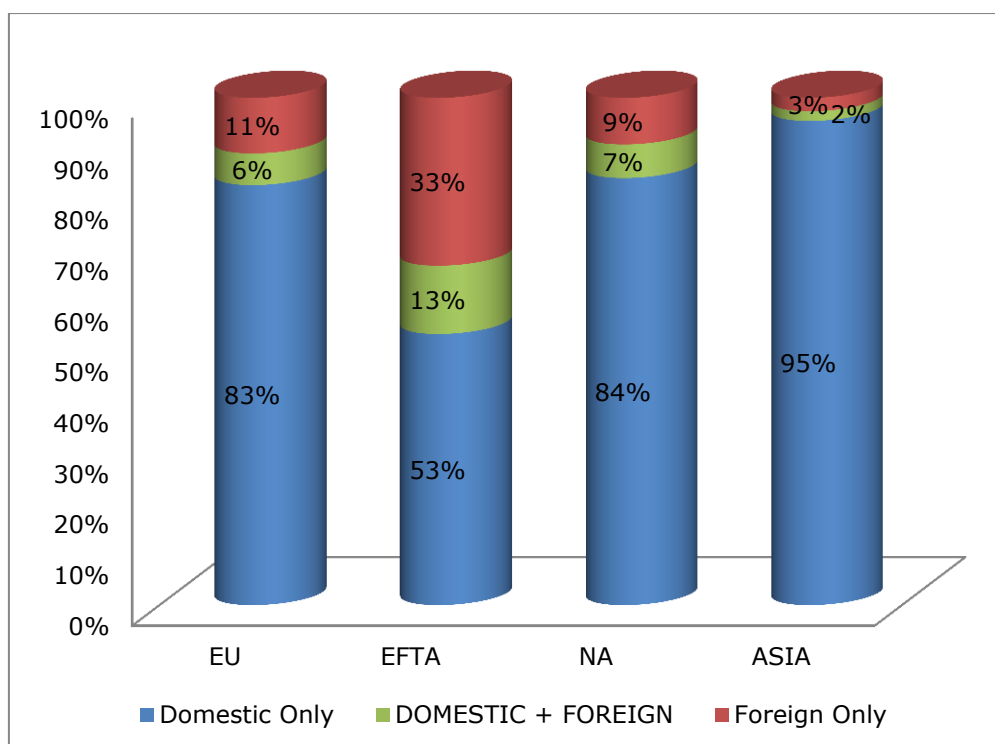


Figure 6 - Shares of domestic, foreign and hybrid inventions by area (1980–2010).

To summarize, the descriptives in this section show a slight decrease in the number and share of domestic inventions over the last three decades, mirrored by an increase in foreign inventions. This increase in the propensity for cross-border collaboration is visible in all world areas, but – for the whole considered period – there are differences shares of each area. Asians appear least engaged in international collaboration (> 95% domestic inventions). EFTA countries have a much higher share of international collaboration (almost 50%) than the other areas. The EU27, like North America, is more average with approximately 15% of patents including a non-domestic inventor.

2.1.2 Area distribution of foreign inventors

The previous section showed figures on domestic and foreign patents (three main categories), based on the comparison between applicant and inventor nationality. In this section, we focus further on the patents with foreign inventors – i.e. main categories (1) and (2) – and we provide descriptives on the areas of foreign inventors. We refer back to the three subcategories for foreign inventors, as outlined above:

- a. Domestic area only: all foreign inventors are from the same area as the applicant
- b. Domestic and foreign area: at least one foreign inventor is from the same area as the applicant, and at least one foreign inventor is from a different area
- c. Foreign area only: all foreign inventors are from a different area than the applicant

The following shares are hence distinguished (see also table 3):

	Category	Definition
(1)	DOMESTIC ONLY	Share of patents where all inventors are from the same country as the applicant.
(2)	DOMESTIC AND FOREIGN (HYBRID)	Share of patents where at least one inventor is from the same country as the applicant, and at least one inventor is from a different country.
(2a)	HYBRID_domestic area only	Share of patents where at least one inventor is from the same country as the applicant, and at least one inventor is from a different country. Moreover: all foreign inventors are from the same area as the applicant.
(2b)	HYBRID_domestic and foreign area	Share of patents where at least one inventor is from the same country as applicant, and at least one inventor is from a different country. Moreover: at least one foreign inventor is from the same area as the applicant, and at least one foreign inventor is from a different area.
(2c)	HYBRID_foreign area only	Share of patents where at least one inventor is from the same country as the applicant, and at least one inventor is from a different country. Moreover: all foreign inventors are from a different area than the applicant.
(3)	Share of FOREIGN ONLY	Share of patents where all inventors are from a different country than the applicant.
(3a)	FOREIGN_domestic area only	Share of patents where all inventors are from a different country than the applicant. Moreover: all (foreign) inventors are from the same area as the applicant.
(3b)	FOREIGN_domestic and foreign area	Share of patents where all inventors are from a different country than the applicant. Moreover: at least one (foreign) inventor is from the same area as the applicant, and at least one (foreign) inventor is from a different area.
(3c)	(3c) FOREIGN_foreign area only	Share of patents where all inventors are from a different country than the applicant. Moreover: all (foreign) inventors are from a different area than the applicant.

In what follows, separate tables are presented for each world area, with the evolution of the shares over the period 1980 – 2010.

EU 27

APPY	(1) DOMESTIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only
1980	91.37%	1.15%	0.03%	1.10%	3.45%	0.04%	2.86%
1981	91.75%	1.16%	0.04%	1.15%	3.40%	0.05%	2.46%
1982	90.27%	1.22%	0.03%	1.16%	3.89%	0.04%	3.40%
1983	90.53%	1.43%	0.06%	0.98%	4.46%	0.07%	2.48%
1984	90.88%	1.13%	0.04%	1.16%	4.37%	0.10%	2.33%
1985	89.43%	1.41%	0.09%	1.38%	4.45%	0.13%	3.11%
1986	89.43%	1.46%	0.04%	1.35%	4.43%	0.16%	3.14%
1987	89.41%	1.60%	0.06%	1.50%	4.48%	0.14%	2.82%
1988	88.24%	1.65%	0.06%	1.58%	4.73%	0.15%	3.59%
1989	87.75%	1.76%	0.10%	1.60%	4.95%	0.22%	3.62%
1990	87.51%	2.19%	0.13%	1.77%	4.65%	0.22%	3.53%
1991	87.43%	1.95%	0.12%	1.70%	4.66%	0.20%	3.95%
1992	86.36%	2.34%	0.15%	1.95%	4.87%	0.30%	4.04%
1993	86.44%	2.24%	0.17%	2.01%	5.01%	0.24%	3.90%
1994	85.51%	2.55%	0.16%	2.11%	5.37%	0.34%	3.96%
1995	84.61%	2.68%	0.19%	2.44%	5.61%	0.35%	4.12%
1996	84.20%	2.82%	0.19%	2.56%	5.39%	0.42%	4.41%
1997	83.99%	3.05%	0.20%	2.75%	5.69%	0.46%	3.86%
1998	84.08%	3.07%	0.32%	2.85%	5.59%	0.41%	3.69%
1999	83.40%	3.29%	0.36%	2.93%	5.74%	0.44%	3.84%
2000	82.74%	3.31%	0.43%	2.97%	5.78%	0.49%	4.29%
2001	81.31%	3.68%	0.39%	3.32%	6.14%	0.69%	4.47%

APPY	(1) DOMESTIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only
2002	80.65%	3.99%	0.46%	3.34%	6.45%	0.74%	4.37%
2003	78.70%	3.99%	0.50%	3.37%	7.20%	0.71%	5.53%
2004	78.61%	4.03%	0.46%	3.27%	7.30%	0.74%	5.59%
2005	78.25%	3.99%	0.54%	3.70%	7.19%	0.73%	5.61%
2006	77.72%	4.14%	0.57%	3.59%	7.16%	0.81%	6.01%
2007	78.27%	4.22%	0.54%	3.65%	7.36%	0.70%	5.26%
2008	78.01%	4.36%	0.45%	3.64%	7.32%	0.73%	5.49%
2009	78.46%	4.28%	0.52%	3.45%	7.27%	0.74%	5.28%
2010	79.77%	4.32%	0.55%	3.06%	7.14%	0.61%	4.55%
AVG	82.79%	3.18%	0.33%	2.75%	6.02%	0.50%	4.43%

Table 5 - Shares of EU-27 domestic and foreign patents, further broken down by area of foreign inventors.

For EU-27 patents with foreign inventors (i.e. where there is a difference in applicant and inventor country), the categories (2a) and (3a) are indicative of collaboration between EU27 countries only. They represent the highest percentage of patents with foreign inventors. The lowest shares are the ones that combine inventors from within EU27 and inventors from outside EU-27.

This means that, although international collaboration is increasing in EU27, most of these collaborations do not cross EU-27 borders. If they cross EU27 borders, then in most cases, all inventors are from outside EU27. Hence, the patents combining inventors from within and outside EU27 are scarce.

EFTA

APPY	(1) DOMESTIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only
1980	70.49%	0.16%	0.00%	6.92%	1.03%	0.16%	21.24%
1981	70.63%	0.07%	0.00%	6.46%	0.76%	0.07%	22.01%
1982	67.25%	0.13%	0.00%	7.09%	1.23%	0.00%	24.31%
1983	68.23%	0.18%	0.00%	5.85%	0.60%	0.00%	25.14%

APPY	(1) DOMESTIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only
1984	69.92%	0.27%	0.00%	7.12%	0.70%	0.00%	21.99%
1985	67.04%	0.15%	0.00%	7.76%	0.56%	0.10%	24.39%
1986	67.12%	0.21%	0.10%	6.62%	0.83%	0.10%	25.01%
1987	66.10%	0.50%	0.00%	8.34%	0.84%	0.10%	24.12%
1988	66.50%	0.05%	0.05%	9.76%	0.68%	0.05%	22.92%
1989	65.48%	0.04%	0.12%	8.51%	0.87%	0.37%	24.61%
1990	64.95%	0.47%	0.12%	9.28%	1.67%	0.12%	23.41%
1991	63.23%	0.43%	0.09%	10.31%	0.73%	0.17%	25.04%
1992	63.21%	0.33%	0.04%	9.96%	0.49%	0.16%	25.81%
1993	63.65%	0.24%	0.08%	9.85%	0.65%	0.20%	25.32%
1994	61.61%	0.04%	0.13%	11.38%	0.55%	0.17%	26.12%
1995	58.90%	0.24%	0.08%	13.32%	0.75%	0.48%	26.24%
1996	56.40%	0.15%	0.22%	13.21%	0.80%	0.47%	28.75%
1997	56.56%	0.37%	0.25%	13.00%	0.77%	0.55%	28.50%
1998	56.91%	0.06%	0.20%	13.76%	0.73%	0.20%	28.16%
1999	54.49%	0.18%	0.18%	12.89%	0.52%	0.55%	31.18%
2000	52.69%	0.21%	0.16%	14.46%	0.49%	0.40%	31.58%
2001	50.16%	0.19%	0.13%	15.14%	0.43%	0.45%	33.50%
2002	47.62%	0.15%	0.08%	14.83%	0.38%	0.59%	36.36%
2003	47.85%	0.18%	0.18%	14.06%	0.55%	0.31%	36.86%
2004	47.28%	0.14%	0.16%	14.94%	0.58%	0.56%	36.33%
2005	45.31%	0.20%	0.25%	16.48%	0.37%	0.45%	36.95%
2006	43.58%	0.22%	0.35%	16.63%	0.65%	0.63%	37.94%
2007	43.23%	0.12%	0.45%	15.77%	0.60%	0.48%	39.36%
2008	41.59%	0.22%	0.30%	15.93%	0.66%	2.27%	39.03%

APPY	(1) DOMESTIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only
2009	43.79%	0.23%	0.44%	15.19%	0.63%	0.71%	39.02%
2010	46.93%	0.37%	0.31%	15.06%	0.55%	0.57%	36.20%
AVG	53.45%	0.21%	0.19%	13.07%	0.65%	0.50%	31.94%

Table 6 - Shares of EFTA domestic and foreign patents, further broken down by area of foreign inventors.

For EFTA patents with foreign inventors (i.e. where there is a difference in applicant and inventor country), there is a clear prominence of patents gathering inventors from another area (exclusively). This is different from what was observed in the figures for EU27. Collaborations between inventors from EFTA countries only (2a) and (2b) represent a minor share. Note that this type of collaboration was relatively highest for EU27 foreign

inventions. Like in EU27, collaborations combining inventors from within EFTA and inventors from outside EFTA are least frequent. This means that international collaboration is markedly increasing in EFTA countries, and most of these collaborations cross EFTA borders.

North America

APPY	(1) DOMESTIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only
1980	90.85%	0.36%	0.00%	1.51%	0.58%	0.00%	6.69%
1981	90.36%	0.35%	0.05%	1.75%	0.47%	0.01%	7.00%
1982	90.43%	0.35%	0.05%	1.70%	0.58%	0.01%	6.88%
1983	92.26%	0.30%	0.00%	1.15%	0.45%	0.00%	5.83%
1984	91.47%	0.29%	0.00%	1.71%	0.61%	0.01%	5.91%
1985	91.40%	0.23%	0.01%	2.06%	0.50%	0.02%	5.79%
1986	91.08%	0.40%	0.01%	2.14%	0.46%	0.02%	5.90%
1987	91.32%	0.45%	0.02%	1.85%	0.50%	0.00%	5.87%
1988	90.26%	0.60%	0.06%	2.31%	0.65%	0.03%	6.08%

APPY	(1) DOMESTIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only
1989	89.56%	0.44%	0.04%	2.87%	0.56%	0.03%	6.50%
1990	89.69%	0.44%	0.04%	2.97%	0.54%	0.05%	6.27%
1991	88.59%	0.43%	0.06%	3.05%	0.64%	0.07%	7.17%
1992	88.51%	0.59%	0.05%	3.31%	0.58%	0.02%	6.94%
1993	87.21%	0.62%	0.07%	4.09%	0.42%	0.09%	7.50%
1994	86.56%	0.53%	0.05%	4.54%	0.62%	0.05%	7.64%
1995	85.13%	0.60%	0.08%	4.80%	0.64%	0.08%	8.68%
1996	85.32%	0.66%	0.11%	4.88%	0.65%	0.04%	8.34%
1997	84.10%	0.76%	0.07%	5.27%	0.68%	0.11%	9.00%
1998	82.70%	0.89%	0.13%	5.98%	0.77%	0.06%	9.47%
1999	82.36%	1.05%	0.12%	5.91%	0.85%	0.07%	9.64%
2000	81.77%	1.04%	0.16%	6.17%	1.14%	0.08%	9.64%
2001	80.70%	1.19%	0.16%	6.62%	0.91%	0.07%	10.34%
2002	81.47%	1.26%	0.15%	6.72%	0.77%	0.09%	9.55%
2003	82.06%	1.26%	0.12%	6.68%	0.83%	0.04%	9.02%
2004	81.11%	1.21%	0.15%	7.03%	1.05%	0.06%	9.39%
2005	81.46%	1.15%	0.14%	7.49%	0.94%	0.07%	8.76%
2006	81.67%	1.14%	0.16%	7.59%	0.91%	0.09%	8.43%
2007	81.31%	1.39%	0.20%	7.44%	0.98%	0.15%	8.53%
2008	80.89%	1.55%	0.23%	7.60%	1.13%	0.08%	8.52%
2009	81.98%	1.42%	0.21%	7.39%	1.04%	0.14%	7.82%
2010	81.53%	1.61%	0.28%	7.44%	1.34%	0.08%	7.71%
AVG	84.18%	0.96%	0.12%	5.55%	0.82%	0.07%	8.30%

Table 7 - Shares of North American domestic and foreign patents, further broken down by area of foreign inventors.

The observations for North America are similar to the ones for EU27. For patents with foreign inventors (i.e. where there is a difference in applicant and inventor country), the highest share is represented by collaboration between North American countries only (so within-area collaboration). They represent the highest percentage of patents with foreign inventors. The lowest shares are the ones that combine inventors from within North America

and inventors from outside North America. This means that, although international collaboration is increasing in North America, most of these collaborations do not cross North American borders. If they do cross North American borders, then in most cases, all inventors are from outside North America. Hence, the patents combining inventors from within and outside North America are scarce.

Asia

APPY	(1) DOMESTIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only
1980	98.94%	0.00%	0.00%	0.65%	0.00%	0.00%	0.41%
1981	98.77%	0.00%	0.00%	0.49%	0.00%	0.00%	0.74%
1982	98.81%	0.00%	0.00%	0.67%	0.00%	0.00%	0.52%
1983	98.36%	0.00%	0.00%	0.79%	0.00%	0.00%	0.86%
1984	98.35%	0.00%	0.00%	0.72%	0.00%	0.00%	0.93%
1985	98.48%	0.00%	0.00%	0.79%	0.00%	0.02%	0.71%
1986	98.27%	0.01%	0.00%	0.96%	0.01%	0.00%	0.75%
1987	98.24%	0.01%	0.00%	1.07%	0.00%	0.00%	0.67%
1988	98.20%	0.00%	0.00%	0.97%	0.01%	0.00%	0.82%
1989	98.18%	0.04%	0.00%	0.98%	0.01%	0.00%	0.80%
1990	97.67%	0.04%	0.00%	1.14%	0.01%	0.00%	1.13%
1991	97.80%	0.03%	0.00%	1.03%	0.01%	0.00%	1.14%
1992	96.87%	0.00%	0.00%	1.41%	0.00%	0.01%	1.71%
1993	96.29%	0.03%	0.00%	1.38%	0.02%	0.00%	2.28%
1994	96.59%	0.09%	0.00%	1.28%	0.07%	0.00%	1.96%
1995	96.13%	0.08%	0.00%	1.81%	0.03%	0.07%	1.88%

APPY	(1) DOMESTIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only
1996	95.76%	0.02%	0.00%	1.75%	0.07%	0.01%	2.39%
1997	96.12%	0.08%	0.01%	1.57%	0.09%	0.00%	2.13%
1998	95.29%	0.12%	0.00%	1.99%	0.02%	0.00%	2.58%
1999	94.58%	0.07%	0.02%	2.13%	0.05%	0.01%	3.14%
2000	94.84%	0.17%	0.01%	2.04%	0.09%	0.02%	2.83%
2001	95.35%	0.12%	0.03%	1.79%	0.12%	0.01%	2.59%
2002	94.74%	0.13%	0.00%	2.12%	0.07%	0.01%	2.93%
2003	94.22%	0.20%	0.01%	2.36%	0.18%	0.03%	3.00%
2004	94.31%	0.24%	0.02%	1.93%	0.17%	0.01%	3.31%
2005	94.51%	0.25%	0.02%	1.97%	0.14%	0.02%	3.09%
2006	94.07%	0.36%	0.02%	2.11%	0.17%	0.01%	3.26%
2007	94.15%	0.18%	0.05%	1.99%	0.16%	0.02%	3.47%
2008	94.21%	0.32%	0.03%	1.88%	0.17%	0.03%	3.36%
2009	94.78%	0.28%	0.01%	1.86%	0.22%	0.03%	2.82%
2010	94.42%	0.22%	0.03%	1.93%	0.28%	0.02%	3.09%
AVG	95.44%	0.15%	0.01%	1.75%	0.11%	0.01%	2.52%

Table 8 - Shares of Asian domestic and foreign patents, further broken down by area of foreign inventors.

For Asia in general (cf. supra) the share of international collaboration is very limited to start with. For the little proportion of patents that do have foreign inventors – and this is in line with the observations for EFTA - there is a prominence of patents gathering non- Asian inventors (exclusively).

The graphs below show the evolution of shares by area, with separate graphs for each subcategory of foreign inventors (HYBRID and FOREIGN aggregated).

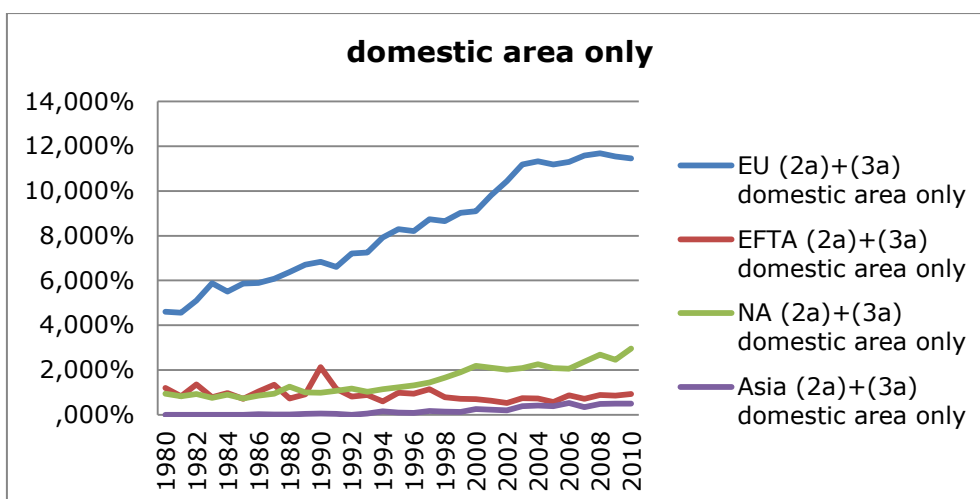


Figure 7 - Evolution in the share of 'domestic area only' inventions (2a + 3a) by area.

The graph shows that the share of 'domestic area only' inventions is generally increasing, with the share level and the increase being most pronounced for EU27. For the other areas, the share is lower and the increase is less steep over the considered time period. This means that, when collaborating with foreign inventors, especially European applicants tend to keep the collaboration within the EU27 borders.

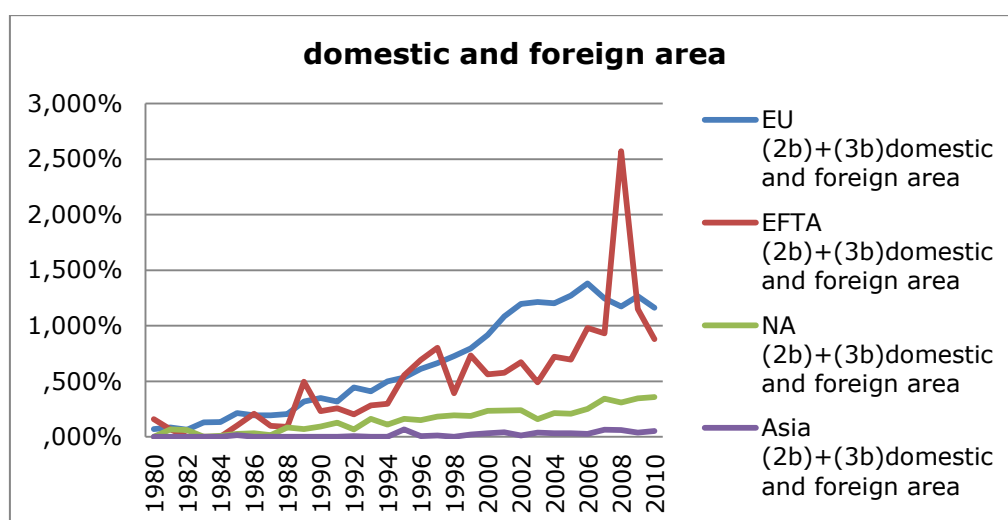


Figure 8 - Evolution in the share of 'domestic and foreign area' inventions (2b + 3b) by area.

As became visible in the preceding tables, this subcategory represents low shares in all world areas. All areas except Asia show an increase in this share, with the increase being most outspoken for EU27 and EFTA countries and since the early nineties.

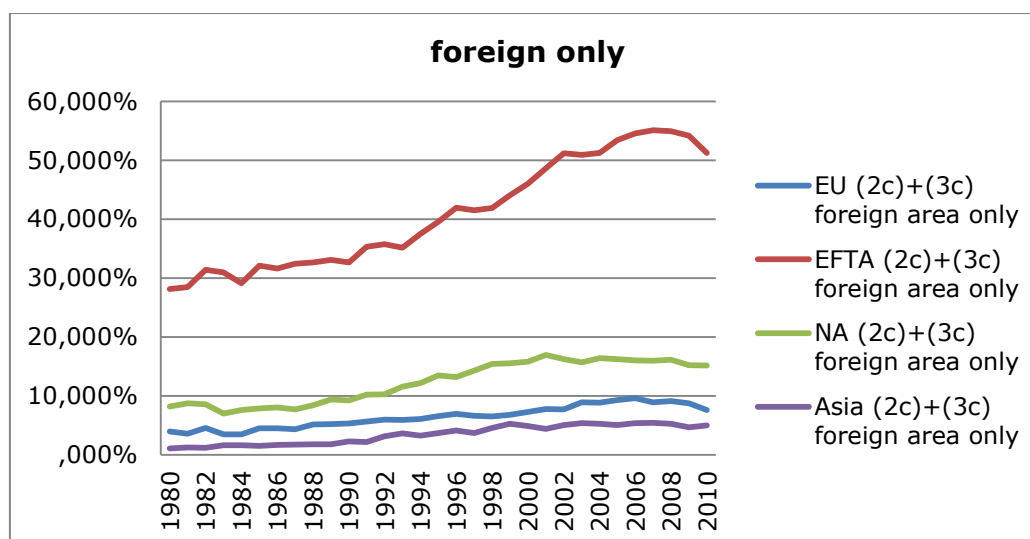


Figure 9 - Evolution in the share of 'foreign area only' inventions (2c + 3c) by area.

Figure 9 shows the prominence of EFTA countries in collaborations that cross the EFTA borders. The share of patents with only foreign inventors from outside the own area is much higher for EFTA than for the other areas. This share is increasing for all areas, indicating more far-reaching international collaboration patterns.

Figure 10 gives a summary overview of the shares by area, aggregated over the considered time period. Only the categories where there are foreign inventors are represented.

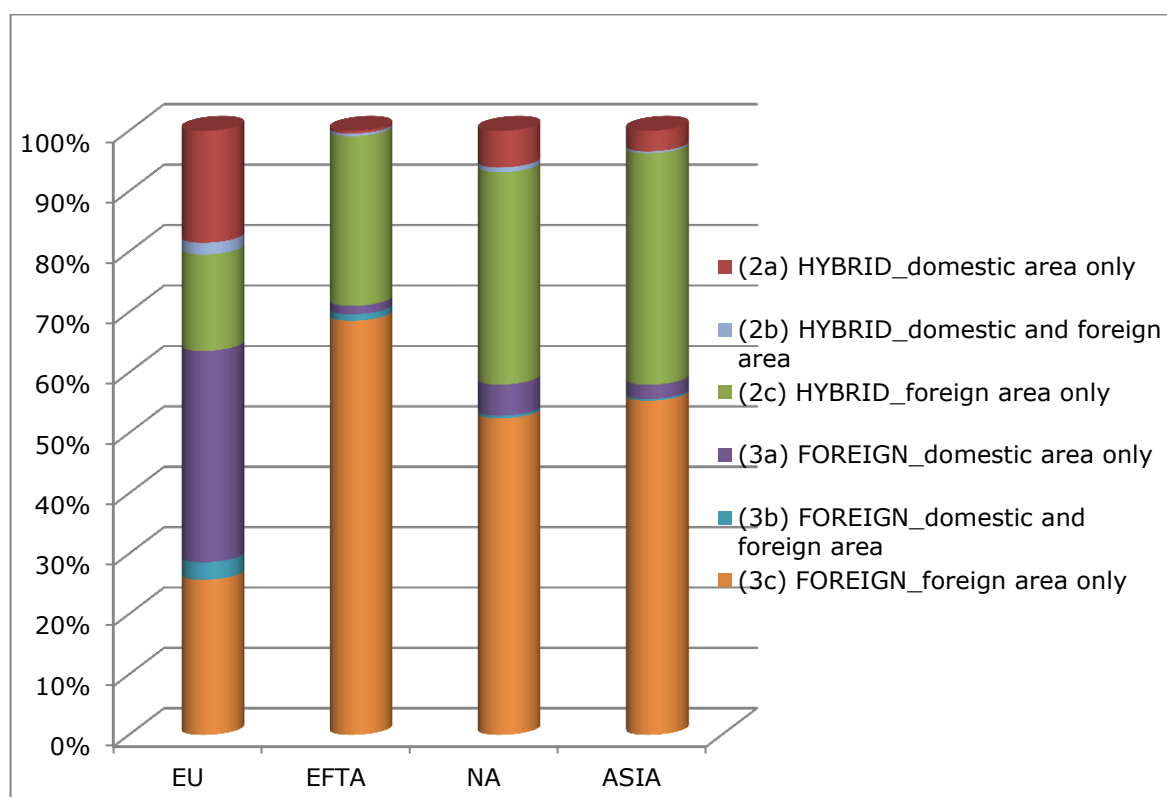


Figure 10 - Shares of categories for foreign collaboration, by area (aggregated for period 1980-2010)

To summarize this section on the area distribution of foreign inventors, we find that EU27 shows a clear tendency of staying within EU27 borders, even if there is collaboration with foreign countries. The observations for North America are similar to those for the EU27. This tendency to focus collaboration on countries within the world area, is opposite to what we see for EFTA, where there is a clear and increasing propensity to collaborate with partners outside EFTA. For Asia, collaboration across country borders was already shown to be very low. If, however, there is international collaboration in Asian patents then this is most likely with non-Asian inventors.

2.1.3 Descriptives by applicant country

In the following tables (9a and 9b), we take a closer look at the shares of cross-country and cross-area collaboration on the level of applicant countries. All figures are aggregated for the full period 1980–2010 (Annual data for all EU27 countries are added in annex 2).

Table 9a gives the absolute numbers, table 9b shows the within country shares for each of the categories distinguished.

APPLT_ AREA	APPLT_ _CTRY	(1) DOMES TIC ONLY	(2a) HYBRID_ domest ic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only	Total
ASIA	CN	11391	59	7	521	115	10	1419	13522
ASIA	IL	12468	59	6	1082	25	4	363	14007
ASIA	IN	3606	4	1	258	0	0	106	3975
ASIA	JP	409552	381	43	5987	200	42	9682	425887
ASIA	KR	41690	267	12	845	217	8	1116	44155
EFTA	CH	49488	83	41	12731	190	105	30510	93148
EFTA	IS	263	1	0	86	1	0	105	456
EFTA	LI	350	118	162	236	477	439	2058	3840
EFTA	NO	6007	17	8	674	13	2	874	7595
EU27	AT	20234	1501	112	440	1802	615	1230	25934
EU27	BE	16962	2217	187	787	3168	246	1499	25066
EU27	BG	285	11	1	11	12	0	5	325
EU27	CY	79	6	0	2	220	32	161	500
EU27	CZ	1022	122	3	27	42	3	82	1301
EU27	DE	415785	13294	1396	13665	14513	849	12092	471594
EU27	DK	14943	1038	136	779	1034	118	653	18701
EU27	EE	103	15	1	6	9	0	10	144
EU27	ES	14149	501	42	211	470	10	119	15502

APPLT_ AREA	APPLT_ CTRY	(1) DOMES TIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only	Total
EU27	FI	19595	1193	183	871	2491	244	1423	26000
EU27	FR	150370	4696	458	4146	9810	573	9044	179097
EU27	GB	94004	3171	480	4747	5411	494	6535	114842
EU27	GR	1049	51	5	35	23	1	12	1176
EU27	HU	2258	60	10	74	67	9	45	2523
EU27	IE	2737	319	44	243	1273	198	1115	5929
EU27	IT	75296	1310	95	1046	968	46	860	79621
EU27	LT	61	3	0	7	3	0	6	80
EU27	LU	741	379	21	28	2075	241	1184	4669
EU27	LV	90	2	2	14	8	0	18	134
EU27	MT	47	15	0	1	92	8	47	210
EU27	NL	55354	3316	321	1727	17449	1471	9769	89407
EU27	PL	1324	90	8	52	39	1	12	1526
EU27	PT	686	56	12	21	134	6	36	951
EU27	RO	144	7	1	6	7	5	3	173
EU27	SE	39400	2089	184	1593	5951	377	3293	52887
EU27	SI	868	66	2	22	25	0	40	1023
EU27	SK	191	29	0	3	26	1	14	264
NORTH AMERICA	CA	23462	2378	317	1508	2124	198	1638	31625
NORTH AMERICA	US	582705	4535	560	38606	3781	297	58149	688633

Table 9a - Numbers of domestic and foreign patents by applicant country, further broken down by area of foreign inventors.

APPLT_ AREA	APPLT_ CTRY	(1) DOMES TIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only	Total
ASIA	CN	84.24%	0.44%	0.05%	3.85%	0.85%	0.07%	10.49%	100.00%
ASIA	IL	89.01%	0.42%	0.04%	7.72%	0.18%	0.03%	2.59%	100.00%
ASIA	IN	90.72%	0.10%	0.03%	6.49%	0.00%	0.00%	2.67%	100.00%
ASIA	JP	96.16%	0.09%	0.01%	1.41%	0.05%	0.01%	2.27%	100.00%
ASIA	KR	94.42%	0.60%	0.03%	1.91%	0.49%	0.02%	2.53%	100.00%
EFTA	CH	53.13%	0.09%	0.04%	13.67%	0.20%	0.11%	32.75%	100.00%
EFTA	IS	57.68%	0.22%	0.00%	18.86%	0.22%	0.00%	23.03%	100.00%
EFTA	LI	9.11%	3.07%	4.22%	6.15%	12.42%	11.43%	53.59%	100.00%
EFTA	NO	79.09%	0.22%	0.11%	8.87%	0.17%	0.03%	11.51%	100.00%
EU27	AT	78.02%	5.79%	0.43%	1.70%	6.95%	2.37%	4.74%	100.00%
EU27	BE	67.67%	8.84%	0.75%	3.14%	12.64%	0.98%	5.98%	100.00%
EU27	BG	87.69%	3.38%	0.31%	3.38%	3.69%	0.00%	1.54%	100.00%
EU27	CY	15.80%	1.20%	0.00%	0.40%	44.00%	6.40%	32.20%	100.00%
EU27	CZ	78.55%	9.38%	0.23%	2.08%	3.23%	0.23%	6.30%	100.00%
EU27	DE	88.17%	2.82%	0.30%	2.90%	3.08%	0.18%	2.56%	100.00%
EU27	DK	79.90%	5.55%	0.73%	4.17%	5.53%	0.63%	3.49%	100.00%
EU27	EE	71.53%	10.42%	0.69%	4.17%	6.25%	0.00%	6.94%	100.00%
EU27	ES	91.27%	3.23%	0.27%	1.36%	3.03%	0.06%	0.77%	100.00%
EU27	FI	75.37%	4.59%	0.70%	3.35%	9.58%	0.94%	5.47%	100.00%
EU27	FR	83.96%	2.62%	0.26%	2.31%	5.48%	0.32%	5.05%	100.00%
EU27	GB	81.86%	2.76%	0.42%	4.13%	4.71%	0.43%	5.69%	100.00%
EU27	GR	89.20%	4.34%	0.43%	2.98%	1.96%	0.09%	1.02%	100.00%
EU27	HU	89.50%	2.38%	0.40%	2.93%	2.66%	0.36%	1.78%	100.00%
EU27	IE	46.16%	5.38%	0.74%	4.10%	21.47%	3.34%	18.81%	100.00%
EU27	IT	94.57%	1.65%	0.12%	1.31%	1.22%	0.06%	1.08%	100.00%

APPLT_ AREA	APPLT_ CTRY	(1) DOMES TIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only	Total
EU27	LT	76.25%	3.75%	0.00%	8.75%	3.75%	0.00%	7.50%	100.00%
EU27	LU	15.87%	8.12%	0.45%	0.60%	44.44%	5.16%	25.36%	100.00%
EU27	LV	67.16%	1.49%	1.49%	10.45%	5.97%	0.00%	13.43%	100.00%
EU27	MT	22.38%	7.14%	0.00%	0.48%	43.81%	3.81%	22.38%	100.00%
EU27	NL	61.91%	3.71%	0.36%	1.93%	19.52%	1.65%	10.93%	100.00%
EU27	PL	86.76%	5.90%	0.52%	3.41%	2.56%	0.07%	0.79%	100.00%
EU27	PT	72.13%	5.89%	1.26%	2.21%	14.09%	0.63%	3.79%	100.00%
EU27	RO	83.24%	4.05%	0.58%	3.47%	4.05%	2.89%	1.73%	100.00%
EU27	SE	74.50%	3.95%	0.35%	3.01%	11.25%	0.71%	6.23%	100.00%
EU27	SI	84.85%	6.45%	0.20%	2.15%	2.44%	0.00%	3.91%	100.00%
EU27	SK	72.35%	10.98%	0.00%	1.14%	9.85%	0.38%	5.30%	100.00%
NA	CA	74.19%	7.52%	1.00%	4.77%	6.72%	0.63%	5.18%	100.00%
NA	US	84.62%	0.66%	0.08%	5.61%	0.55%	0.04%	8.44%	100.00%

Table 9b - Shares of domestic and foreign patents by applicant country, further broken down by area of foreign inventors.

Tables 9a and 9b show considerable country differences for EU27. Previous figures showed that the share of domestic patents was average for EU27 (compared to other areas). In the further country breakdown, it can be seen that this domestic share is especially high for countries like Italy, Spain, Germany (and smaller players Hungary and Greece). An outspoken higher share of foreign collaboration is revealed in Ireland, the Netherlands and Belgium. The collaboration for these countries is relatively

focused on other countries within EU27 (see 2a and 3a). The EFTA, compared to other areas, showed a significantly lower share of domestic inventions. The country breakdown reveals that this is less outspoken for Norway, and especially driven by Switzerland. The high share of domestic inventions in Asian countries is especially outspoken for Korea and Japan. In North America, the high share of domestic inventions is most outspoken for US, somewhat less for Canada.

2.1.4 Conclusion descriptive statistics

An increase in foreign inventions, or an increased propensity for cross-border collaboration, became apparent in all world areas. There are clear area differences in the shares of foreign inventions. Asian applicants, with over 95% domestic inventions, appear least engaged in international collaboration. For EFTA applicants, almost 50% of patents include a non-domestic inventor; this area has the highest share of international collaboration. The EU27 and North America are more average with approximately 15% of patents including a non-domestic inventor.

Shifting the focus to foreign inventions only, we further considered whether or not foreign inventors come from the same world region. EU27 applicants show a clear tendency of collaborating with inventors from within EU27 borders. The observations for North America are similar to those for the EU27. This tendency to focus collaboration on countries within the world area, is opposite to what we see for EFTA, where there is a clear and increasing propensity to collaborate with partners outside EFTA. For Asia, collaboration across country borders is very low, but if there is international collaboration in Asian patents, then this is most likely with non-Asian inventors. On a more disaggregated level, the results by applicant country (instead of world areas) reveal considerable country differences, especially within the EU27. This country-level revealed diversity in patterns and trends for the EU-27 will be further analyzed in a next section.

3. Trend Analysis

To further explore the trend in terms of internationalization within the EU-research area, the evolution of the share of 'domestic' patents by country is given. This variable measures the percentage share of patents where all inventors are from the same country as the applicant. The higher the domestic share, the smaller the degree of internationalization.

In a next section, a trend analysis on the internationalization growth rate is done for each country, and for the EU as a whole. This is achieved by means of regressions on the time-series data:

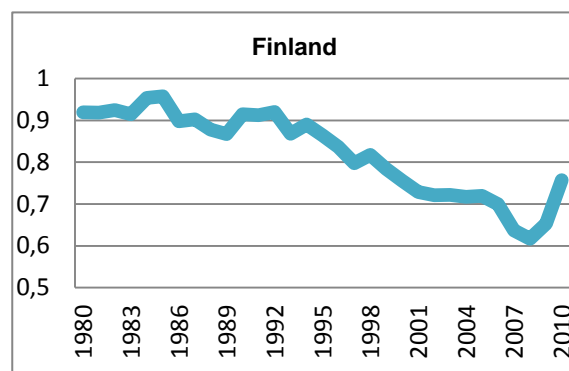
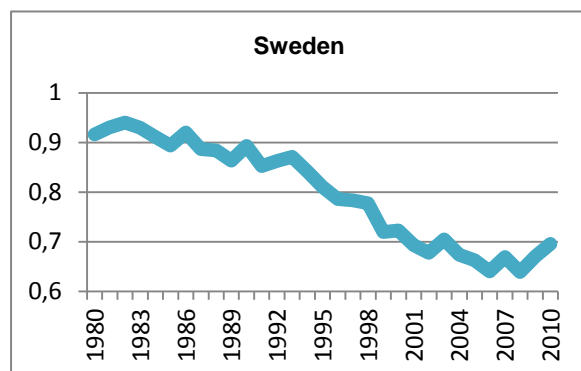
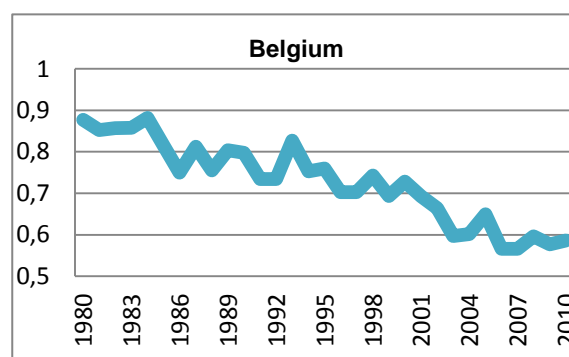
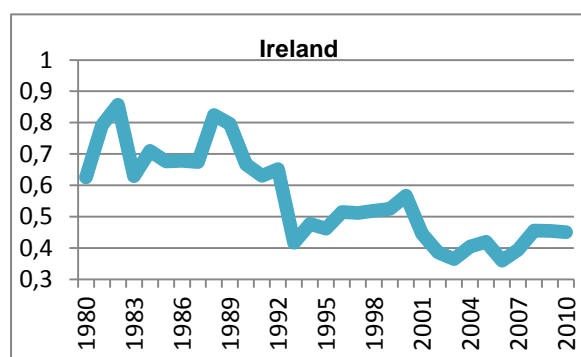
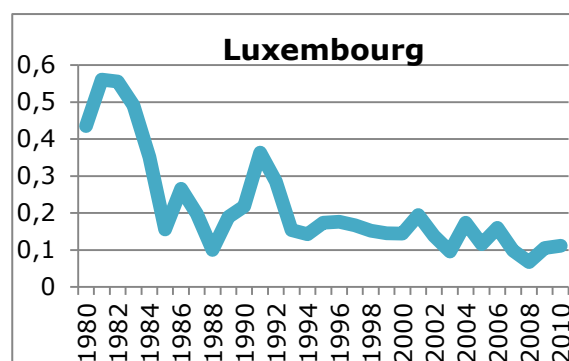
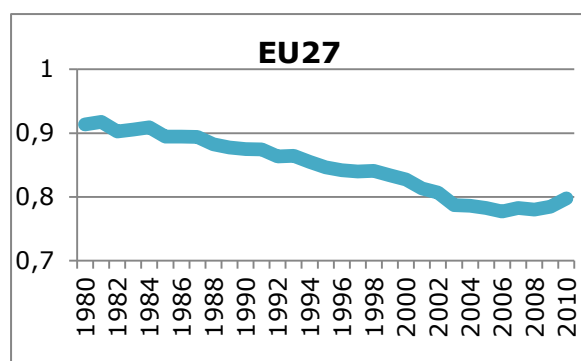
$$y_t = \beta x_t + \varepsilon_t$$

With y_t denoting the domestic share of patents in each year. x_t is the year variable, ranging from 1980-2010. β denotes the slope of the regression line, and is a measure of how the domestic share of patents changes per year. ε_t is the error term. The table of results also displays the R^2 , which is a measure of goodness of fit of the regression model. R^2 takes on values between 0 and 1, with a higher R^2 indicating a better goodness of fit.

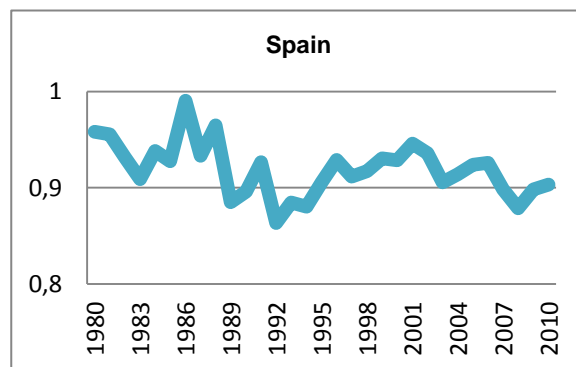
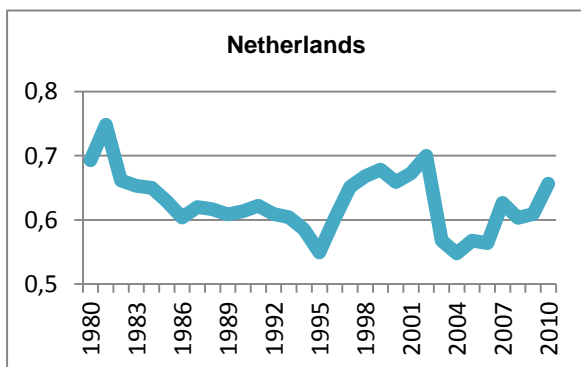
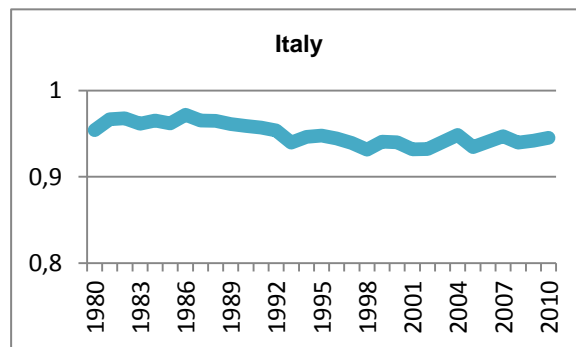
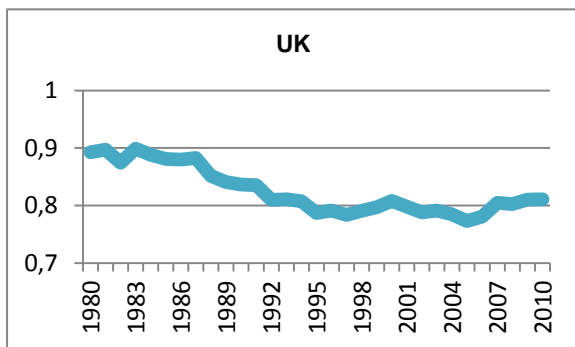
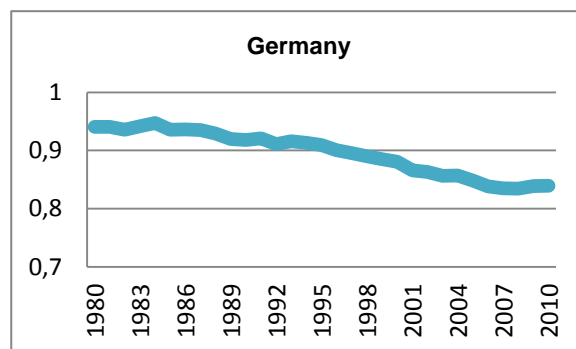
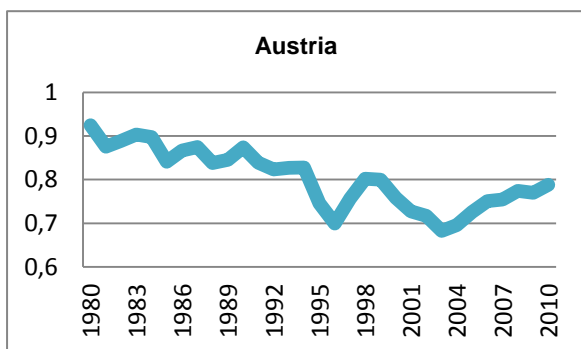
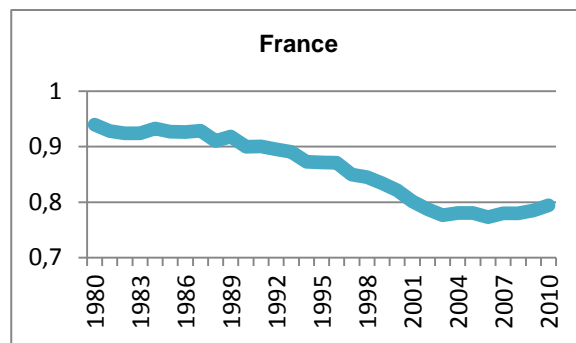
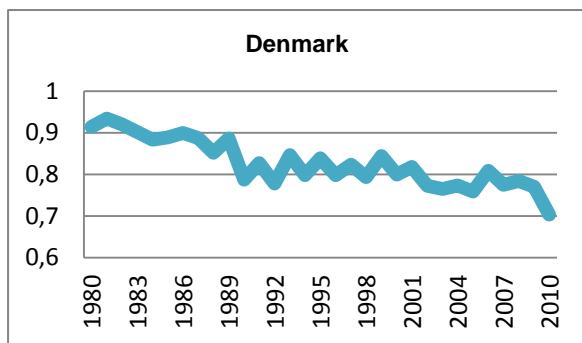
Regarding the availability of data, there are countries with limited volumes of patents for long periods. A related issue is that certain countries were not yet founded in 1980 or later, e.g. the Slovak Republic. As a consequence, for these countries, a more quantitative trend analysis was not feasible. The concerned countries are: Bulgaria, Cyprus, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovak Republic and Slovenia. Descriptive statistics and regression results for these countries are enclosed in Annex 4.

After showing some graphs with basic descriptives, we present the regression results for the countries for which sufficient data are available. Next, these countries are classified in a quadrant according to their share of international inventors from 2008-2010, and their internationalization growth rate in the period 1980-2010. We conclude by examining whether one observes an accelerated trend in terms of internationalization for more recent years, i.e. after 2000.

3.1 Graphical breakdown of domestic share of patents by country³



³ Graphs are presented only for countries with sufficient volumes of patents. For the other EU-27 countries, we refer to annex 3.



3.2 Regression results

	Period	R ²	β^4	Average domestic share first 3 years	Average domestic share last 3 years
EU27	1980-2010	0,9630	-0,0050***	91,13%	78,75%

INCREASING INTERNATIO- NALIZATION

ranked by largest growth⁵

1. Luxembourg	1980-2010	0,5657	-0,0112***	51,71%	9,46%
threshold = 50	1982-2010	0,4831	-0,0094***	46,60%	9,46%
2. Ireland	1980-2010	0,6905	-0,0133***	75,79%	45,37%
threshold = 50	1990-2010	0,4663	-0,0099***	64,99%	45,37%
3. Belgium	1980-2010	0,8873	-0,0102***	86,23%	58,63%
4. Sweden	1980-2010	0,9296	-0,0110***	92,92%	66,84%
5. Finland	1980-2010	0,8517	-0,0103***	92,07%	67,58%
6. Denmark	1980-2010	0,7730	-0,0056***	92,27%	75,25%
7. France	1980-2010	0,9291	-0,0064***	93,05%	78,64%
8. Austria	1980-2010	0,6782	-0,0062***	89,62%	77,75%
9. Germany	1980-2010	0,9525	-0,0041***	93,91%	83,75%
10. UK	1980-2010	0,7180	-0,0038***	88,81%	80,79%
11. Italy	1980-2010	0,6228	-0,0011***	96,28%	94,21%

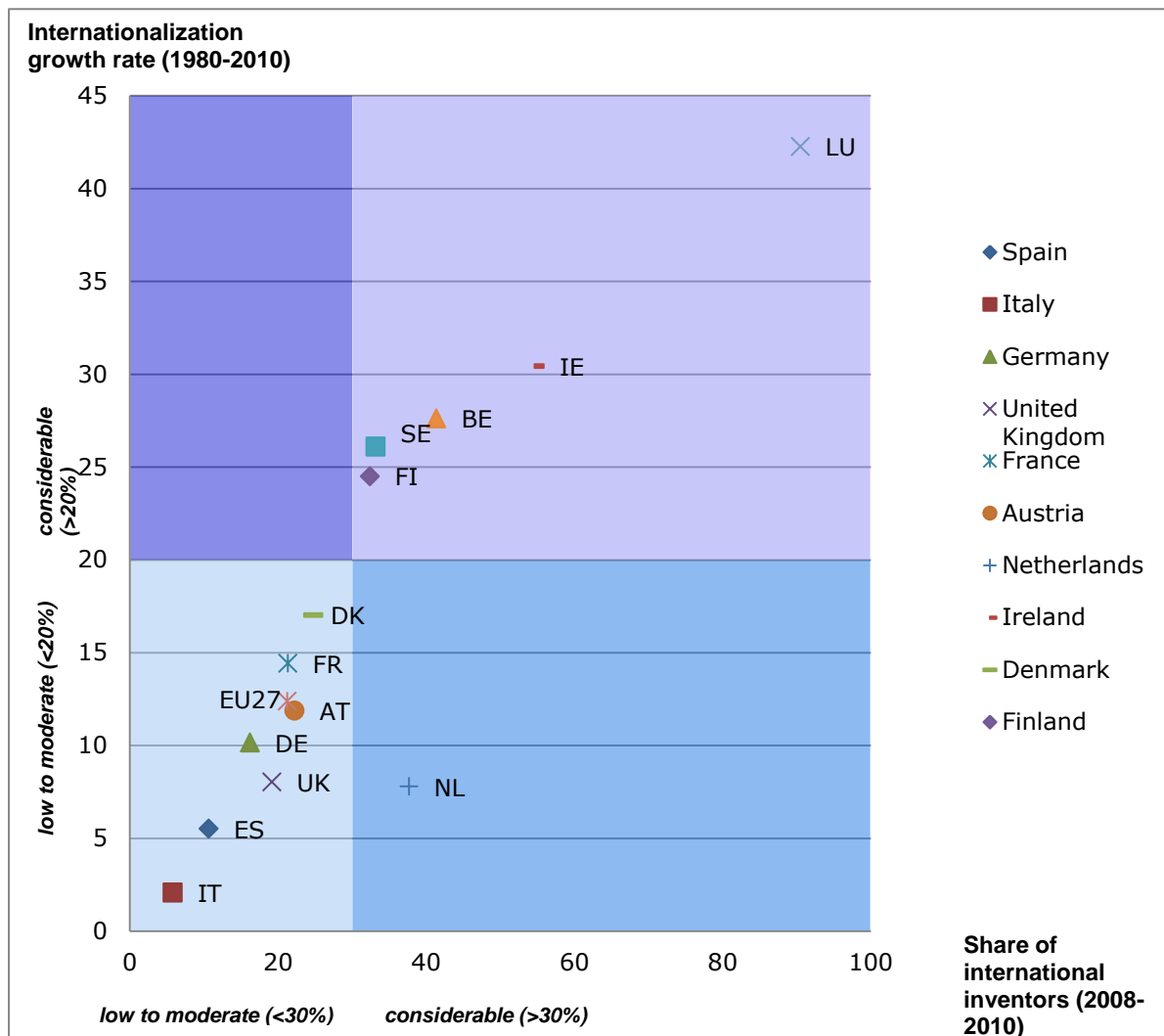
NO CLEAR TREND IN INTERNATIO- NALIZATION

1. Netherlands	1980-2010	0,1180	-0,0017 (n.s.)	70,08%	62,29%
2. Spain	1980-2010	0,1494	-0,0012**	94,86%	89,34%
threshold = 50	1983-2010	0,0652	-0,0008 (n.s.)	92,50%	89,34%

⁴ ** = $p < 0.05$; *** = $p < 0.01$; n.s. = non-significant

⁵ average (2008-2010) – average (1980-1982)

3.3 Main findings



The statistical trend analysis on EU-countries for which volumes of patents were sufficiently large reveals a positive internationalization trend. As shown in the above graph, countries can be classified into four quadrants. The lower left quadrant is characterized by a low to moderate current share of international inventors, and a low to moderate internationalization growth rate between 1980 and 2010. This quadrant includes Italy, Spain, United Kingdom, Germany, EU27 as a whole, Austria, France and Denmark. The upper right quadrant consists of countries with a considerable internationalization growth rate between 1980 and 2010, and that currently have a considerable share of international inventors: Finland, Sweden, Belgium, Ireland and Luxemburg. One exception is the Netherlands, with a considerable current share of international inventors, but a low to moderate growth rate between 1980 and 2010. The rationale behind this is that the Netherlands were already considerably internationalized in 1980.

To summarize, the results of the trend analysis confirm an increasingly unified EU-research area, although there is a huge amount of variety between countries. A first group of countries is characterized by a low to moderate current share of international

inventors, and a low to moderate internationalization growth rate between 1980 and 2010. A second group of countries has a considerable current share of international inventors and also displayed a considerable internationalization growth rate between 1980 and 2010.

Increasing internationalization after 2000?

As the previous trend charts indicate, a growing trend in terms of internationalization is manifest throughout the whole time period, 1980 – 2010. In order to verify whether this trend alters over time (due to the introduction of the ERA in 2000) we compared the trend observed between 1991 – 1999 with the trend observed between 2000 – 2010 (and also 2000 – 2008, to account for incomplete data during more recent years). Next, a Fisher test was performed to verify whether growth rates differ significantly ($p < 0,05$). For most countries under study, as well as for the EU-27, no significant differences are observed. For the EU-27 e.g., we observe a negative relation between time and the share of 'domestic only' inventions amounting to -0,98 during the nineties. This coefficient lowers to -0,89 during the first decade after 2000, but the difference is non-significant. Similar observations hold for the majority of European countries, including Luxemburg, Ireland, Belgium, Finland, Denmark, Germany, Portugal, Greece, Hungary, Latvia, Malta, Poland, Romania, and Slovenia. Exceptions include Sweden, UK, France, Austria and Italy, where we observe a significant difference in terms of international inventors but whereby the growth rate is higher during the nineties than after the millennium term. The opposite holds for Czech Republic, Latvia, Netherlands, Czech Republic and Spain: here one witnesses an increase in terms of international presence during the first decade of 2000 (compared with the nineties).

Overall, one tends to conclude that the growing trend towards internationalization of inventive activities is present during the whole period (1980 – 2010) and that – on average – the introduction of the ERA did not create an additional 'shock' that altered this trend significantly.

Relation with other indicators of innovative performance.

Finally, we explored whether the observed internationalization patterns coincide with other indicators of innovative performance on the country level. A first indicator relates to a composed index provided by the EC, reflecting the innovative performance of countries. This indicator combines the amount of PCT applications, the employment in knowledge intensive industries and in fast growing companies (in these industries) and finally the (balanced) presence of goods and services. A second indicator for 'research excellence' combines highly cited patents, the ranking of universities and research institutes and finally the number of PCT applications. These indicators reflect the time period 2010-2012.

In order to assess the presence of a positive relationship, we calculated rank order calculations between both indicators and the level of internationalization as reflected by the degree of change observed between the period 1980 – 2008 (we excluded more recent years to accommodate for the publication lag). The next table presents the results for EU-27 countries.

Correlations

		Innovation Output	Internationalizatio n 1980 – 2008	Scientific Excellence
Innovation Output	Pearson Correlation	1	.466*	.786**
	Sig. (2-tailed)		.014	.000
	N	27	27	27
Internationalization 1980 – 2008	Pearson Correlation	.466*	1	.382*
	Sig. (2-tailed)	.014		.049
	N	27	27	27
Scientific Excellence	Pearson Correlation	.786**	.382*	1
	Sig. (2-tailed)	.000	.049	
	N	27	27	27

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Positive significant relationships are observed between both innovation output and scientific excellence on the one hand and the degree of internationalization on the other hand. Similar significance levels are obtained after controlling for the size of the country (measured by population). As such, these observations suggest a clear association between internationalization and the innovative performance of national innovation systems. Whether and to what extent causality is involved, requires additional efforts whereby data of a longitudinal nature (as presented in this report) are supplemented with a set of relevant control variables (including – amongst others - R&D expenditures and the presence (scale/scope) of MNE's).

4. General conclusion

This analytical report considers the evolution of international collaboration as witnessed by co-inventor data. Do European countries rely more on international inventor teams when developing technology and if so, is this increase mainly accounted for by cross-border cooperation of EU-27 countries?

Basic descriptives on the international dimension in applicant and inventor addresses show an increasing international collaboration trend for all world areas considered. In terms of the extent of internationalization, the EU27 – compared to other world areas – has a moderate degree of foreign inventorship (with about 15% of patents in EU27 countries having foreign inventors). Descriptives for other world areas show that the figures for EU-27 are similar to the North American statistics. EFTA countries have a significantly higher share of international collaboration (almost 50% of patents with foreign inventors). Asian countries are least prone to collaborate internationally (more than 95% of Asian patents have only domestic inventors).

When taking a closer look at the nationalities of foreign inventors, EU27 applicants show a clear tendency of collaborating with inventors from within EU27 borders. The observations for North America are again similar to those for the EU27. This tendency to focus collaboration on countries within the world area, is opposite to what we see for EFTA and Asia, where there is a propensity to collaborate more with partners outside the own area. Results for the EU-27 were on the more disaggregated level of applicant countries reveal considerable country differences. This diversity in patterns and trends among EU-27 states is confirmed. The domestic share is especially high for countries like Italy, Spain and Germany. This is confirmed in the trend analysis, where these countries are in the quadrant characterized by low to moderate internationalization and a low growth rate in internationalization. The descriptives show a much higher share of foreign collaboration in Ireland, the Netherlands and Belgium. In the statistical trend analysis, these countries are indeed revealed to have a high share of internationalization, and especially Ireland and Belgium showed a considerable share growth over the considered period.

Overall – in spite of country variation – the EU27 has a moderate but steadily increasing international dimension in its patents (as measured by the share patents from EU27 applicants involving foreign inventors). At the same time, EU27 applicants show a clear tendency of collaborating with inventors from within EU27 borders, which suggests that the presence of a European 'research' area is reflected in intra-European collaboration in technology development as well.

Annexes

Annex 1 – Descriptives: Trends (1980-2010) in category shares by EU27 country.

For each EU27 country, the trends in shares of the 7 distinguished categories of collaboration are presented in the tables below (EPO patents, broken down by applicant country).

AT

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	239	92.47%	1.67%	0.00%	0.42%	5.44%	0.00%	0.00%
1981	281	87.54%	2.49%	0.00%	1.07%	6.41%	0.71%	1.78%
1982	287	88.85%	3.14%	0.00%	0.70%	5.23%	0.00%	2.09%
1983	342	90.35%	1.46%	0.00%	0.00%	7.31%	0.29%	0.58%
1984	381	89.76%	2.62%	0.00%	0.52%	4.46%	0.26%	2.36%
1985	515	84.08%	2.91%	0.00%	0.58%	6.60%	0.00%	5.83%
1986	556	86.69%	2.70%	0.00%	1.44%	4.86%	0.18%	4.14%
1987	502	87.45%	2.79%	0.00%	1.20%	5.18%	0.40%	2.99%
1988	573	83.77%	3.14%	0.35%	1.92%	7.85%	0.35%	2.62%
1989	628	84.55%	3.50%	0.32%	1.75%	5.73%	0.00%	4.14%
1990	635	87.40%	2.68%	0.00%	1.26%	5.20%	0.47%	2.99%
1991	640	83.91%	4.84%	0.16%	1.56%	5.78%	0.78%	2.97%
1992	652	82.36%	3.83%	0.46%	0.77%	6.44%	1.23%	4.91%
1993	606	82.67%	4.46%	0.00%	0.99%	5.78%	1.16%	4.95%
1994	638	82.76%	3.61%	0.16%	1.10%	6.90%	2.66%	2.82%
1995	680	74.56%	4.71%	0.29%	3.09%	5.88%	4.56%	6.91%
1996	675	69.93%	4.74%	0.30%	4.00%	6.52%	5.19%	9.33%
1997	719	75.66%	4.31%	0.14%	2.50%	6.82%	3.48%	7.09%
1998	884	80.20%	5.43%	0.23%	1.81%	5.09%	1.70%	5.54%

AT

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1999	890	80.00%	3.48%	0.00%	1.12%	3.93%	3.48%	7.98%
2000	984	75.81%	4.47%	1.12%	1.42%	8.03%	3.35%	5.79%
2001	1121	72.70%	5.71%	0.80%	2.32%	6.16%	4.19%	8.12%
2002	1142	71.72%	7.18%	0.44%	1.58%	8.23%	3.77%	7.09%
2003	1204	68.27%	6.64%	0.83%	1.99%	7.64%	6.48%	8.14%
2004	1347	69.56%	6.98%	0.74%	1.56%	8.69%	5.86%	6.61%
2005	1283	72.56%	7.09%	0.31%	1.33%	9.04%	4.60%	5.07%
2006	1351	75.06%	5.48%	0.37%	1.55%	7.62%	3.48%	6.44%
2007	1489	75.42%	8.53%	0.94%	2.01%	7.45%	1.14%	4.50%
2008	1346	77.41%	9.21%	0.59%	2.38%	7.95%	0.74%	1.71%
2009	1534	76.99%	9.58%	0.72%	2.48%	8.08%	0.91%	1.24%
2010	1309	78.84%	10.08%	0.53%	1.38%	7.41%	0.15%	1.60%

BE

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	236	87.71%	2.12%	0.42%	0.85%	7.63%	0.00%	1.27%
1981	224	85.27%	3.57%	0.00%	1.34%	9.82%	0.00%	0.00%

BE

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1982	217	85.71%	2.76%	0.46%	2.30%	5.07%	0.00%	3.69%
1983	281	85.77%	3.20%	0.00%	1.42%	9.61%	0.00%	0.00%
1984	312	88.14%	1.92%	0.00%	0.32%	7.05%	0.00%	2.56%
1985	374	81.55%	5.61%	0.27%	0.80%	8.82%	0.00%	2.94%
1986	368	75.00%	6.25%	0.27%	3.53%	8.97%	0.82%	5.16%
1987	410	81.22%	6.10%	0.00%	4.63%	5.85%	0.24%	1.95%
1988	465	75.48%	4.52%	0.22%	3.23%	10.11%	0.65%	5.81%
1989	458	80.35%	4.59%	0.00%	3.93%	7.64%	0.00%	3.49%
1990	514	79.77%	5.06%	0.78%	2.33%	7.59%	0.78%	3.70%
1991	433	73.44%	7.85%	0.23%	3.00%	9.01%	0.92%	5.54%
1992	538	73.42%	7.43%	0.56%	3.35%	10.22%	0.37%	4.65%
1993	590	82.71%	4.75%	0.34%	2.03%	7.12%	0.00%	3.05%
1994	623	75.28%	6.26%	0.00%	2.89%	11.24%	0.48%	3.85%
1995	675	76.00%	6.52%	0.30%	1.48%	10.81%	1.04%	3.85%
1996	669	70.25%	7.03%	0.15%	2.69%	11.51%	0.60%	7.77%
1997	824	70.27%	6.80%	0.12%	3.40%	12.62%	1.09%	5.70%
1998	999	74.27%	6.71%	0.40%	2.30%	10.61%	1.50%	4.20%
1999	1040	69.33%	10.00%	1.15%	3.56%	10.67%	0.38%	4.90%
2000	1060	72.83%	11.13%	0.75%	3.21%	8.40%	0.57%	3.11%
2001	1078	69.29%	9.09%	1.58%	4.17%	9.65%	1.02%	5.19%
2002	1122	66.40%	9.09%	1.34%	4.55%	10.96%	2.23%	5.44%
2003	1260	59.68%	10.08%	0.87%	4.60%	15.87%	0.87%	8.02%
2004	1315	60.15%	11.41%	1.22%	2.66%	16.35%	1.44%	6.77%

BE

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2005	1531	64.92%	10.78%	0.72%	2.29%	12.28%	0.85%	8.16%
2006	1603	56.64%	11.10%	1.19%	3.68%	15.72%	2.12%	9.54%
2007	1628	56.57%	12.41%	0.86%	2.76%	17.57%	1.47%	8.35%
2008	1522	59.59%	11.17%	0.46%	4.60%	14.85%	1.25%	8.08%
2009	1324	57.70%	11.93%	1.36%	3.02%	16.99%	1.06%	7.93%
2010	1169	58.60%	8.47%	1.11%	3.34%	21.13%	0.94%	6.42%

DE

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	5215	94.09%	1.09%	0.04%	1.30%	1.42%	0.02%	2.03%
1981	6429	94.06%	1.14%	0.00%	1.32%	1.45%	0.00%	2.04%
1982	6443	93.57%	1.09%	0.03%	1.32%	1.55%	0.03%	2.41%
1983	6668	94.20%	1.60%	0.09%	0.87%	1.53%	0.04%	1.66%
1984	8237	94.72%	0.95%	0.02%	1.21%	1.38%	0.01%	1.70%
1985	8213	93.56%	1.13%	0.10%	1.57%	1.47%	0.04%	2.13%
1986	9349	93.64%	1.21%	0.03%	1.25%	1.53%	0.04%	2.30%
1987	9815	93.53%	1.33%	0.05%	1.55%	1.28%	0.08%	2.17%

DE

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1988	11281	92.92%	1.38%	0.02%	1.68%	1.61%	0.10%	2.30%
1989	12292	91.98%	1.63%	0.07%	1.59%	1.89%	0.10%	2.74%
1990	12825	91.84%	2.02%	0.12%	2.01%	1.58%	0.10%	2.33%
1991	10621	92.10%	1.51%	0.12%	1.64%	2.19%	0.08%	2.35%
1992	11339	91.08%	2.18%	0.10%	2.02%	2.10%	0.15%	2.37%
1993	11372	91.62%	1.82%	0.17%	1.85%	2.28%	0.09%	2.18%
1994	11562	91.34%	2.08%	0.08%	1.86%	2.37%	0.14%	2.14%
1995	12393	90.95%	2.26%	0.13%	2.15%	2.44%	0.06%	2.03%
1996	13053	90.03%	2.19%	0.12%	2.48%	2.51%	0.13%	2.54%
1997	15472	89.54%	2.56%	0.18%	2.78%	2.72%	0.14%	2.07%
1998	17797	89.03%	2.51%	0.18%	2.74%	3.12%	0.16%	2.26%
1999	19385	88.52%	2.74%	0.26%	3.10%	2.97%	0.15%	2.26%
2000	21266	88.07%	2.92%	0.36%	3.06%	2.98%	0.20%	2.40%
2001	22077	86.60%	3.34%	0.35%	3.66%	3.11%	0.21%	2.73%
2002	21768	86.34%	3.80%	0.45%	3.48%	3.32%	0.21%	2.40%
2003	21663	85.63%	4.10%	0.56%	3.68%	3.43%	0.23%	2.36%
2004	22072	85.73%	3.91%	0.37%	3.64%	3.35%	0.29%	2.70%
2005	22973	84.83%	3.65%	0.55%	4.20%	3.67%	0.25%	2.85%
2006	23898	83.82%	3.76%	0.56%	4.17%	4.13%	0.30%	3.26%
2007	24208	83.51%	3.73%	0.47%	4.10%	4.92%	0.24%	3.04%
2008	23943	83.45%	3.61%	0.39%	4.01%	4.64%	0.29%	3.61%
2009	22144	83.87%	3.77%	0.51%	3.62%	4.74%	0.31%	3.18%
2010	18633	83.93%	3.81%	0.55%	3.40%	5.11%	0.28%	2.92%

DK

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	105	91.43%	1.90%	0.00%	0.95%	2.86%	0.00%	2.86%
1981	166	93.37%	1.20%	0.00%	3.61%	0.60%	0.00%	1.20%
1982	150	92.00%	1.33%	0.00%	4.00%	2.67%	0.00%	0.00%
1983	163	90.18%	1.84%	0.00%	1.84%	3.68%	0.00%	2.45%
1984	197	88.32%	3.05%	0.00%	1.52%	5.08%	0.00%	2.03%
1985	206	88.83%	2.91%	0.00%	4.85%	1.94%	0.00%	1.46%
1986	219	89.95%	1.37%	0.00%	2.74%	3.20%	0.00%	2.74%
1987	222	88.74%	4.05%	0.00%	0.90%	1.80%	0.00%	4.50%
1988	236	85.17%	5.08%	0.00%	1.69%	5.08%	0.00%	2.97%
1989	291	88.66%	3.09%	0.69%	0.69%	3.78%	0.00%	3.09%
1990	352	78.69%	7.39%	1.14%	3.13%	6.25%	0.28%	3.13%
1991	342	82.75%	4.09%	0.88%	3.51%	7.31%	0.00%	1.46%
1992	387	77.78%	4.65%	1.29%	4.39%	7.24%	0.78%	3.88%
1993	411	84.67%	3.41%	0.73%	2.92%	3.89%	0.00%	4.38%
1994	465	79.78%	6.02%	0.22%	5.16%	4.30%	0.65%	3.87%
1995	477	83.86%	6.08%	0.42%	3.77%	2.73%	0.00%	3.14%
1996	515	79.81%	6.41%	0.00%	5.83%	4.47%	0.19%	3.30%
1997	627	82.30%	4.47%	0.16%	5.58%	4.15%	0.48%	2.87%
1998	673	79.35%	5.35%	0.74%	5.65%	4.90%	0.59%	3.42%
1999	810	84.44%	4.81%	0.49%	4.07%	3.21%	0.37%	2.59%
2000	868	79.95%	5.88%	0.69%	3.80%	6.45%	0.58%	2.65%
2001	945	81.80%	4.44%	0.95%	3.28%	5.08%	1.90%	2.54%
2002	907	77.29%	6.17%	0.77%	6.17%	5.18%	1.21%	3.20%

DK

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2003	1005	76.52%	7.16%	1.29%	4.58%	5.37%	1.99%	3.08%
2004	1060	77.36%	5.94%	1.51%	5.47%	6.04%	0.47%	3.21%
2005	1173	75.87%	6.05%	1.45%	5.71%	6.99%	0.51%	3.41%
2006	1101	80.84%	6.36%	0.54%	1.82%	5.63%	0.54%	4.27%
2007	1164	77.49%	6.44%	1.29%	3.87%	6.79%	0.69%	3.44%
2008	1300	78.38%	5.54%	0.46%	4.31%	5.38%	0.62%	5.31%
2009	1215	77.04%	6.34%	0.41%	4.12%	7.90%	0.33%	3.87%
2010	812	70.32%	8.13%	0.74%	5.17%	8.87%	1.11%	5.67%

ES

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	24	95.83%	0.00%	0.00%	4.17%	0.00%	0.00%	0.00%
1981	45	95.56%	2.22%	0.00%	0.00%	0.00%	0.00%	2.22%
1982	44	93.18%	2.27%	0.00%	2.27%	2.27%	0.00%	0.00%
1983	66	90.91%	1.52%	0.00%	0.00%	6.06%	0.00%	1.52%
1984	81	93.83%	1.23%	0.00%	1.23%	3.70%	0.00%	0.00%
1985	83	92.77%	1.20%	0.00%	0.00%	6.02%	0.00%	0.00%

ES

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1986	104	99.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.96%
1987	150	93.33%	0.00%	0.00%	0.00%	6.00%	0.00%	0.67%
1988	171	96.49%	0.58%	0.00%	0.58%	1.75%	0.00%	0.58%
1989	200	88.50%	1.50%	0.00%	1.00%	8.00%	0.00%	1.00%
1990	240	89.58%	3.33%	0.00%	0.83%	5.42%	0.00%	0.83%
1991	259	92.66%	1.93%	0.00%	1.16%	3.47%	0.00%	0.77%
1992	293	86.35%	3.07%	0.00%	0.68%	6.14%	0.34%	3.41%
1993	286	88.46%	1.75%	0.00%	1.40%	7.69%	0.00%	0.70%
1994	343	88.05%	3.21%	1.46%	2.62%	3.79%	0.00%	0.87%
1995	329	90.58%	2.13%	0.00%	1.82%	5.17%	0.00%	0.30%
1996	337	92.88%	2.67%	0.30%	1.19%	2.37%	0.00%	0.59%
1997	408	91.18%	3.43%	0.00%	1.72%	2.45%	0.00%	1.23%
1998	520	91.73%	2.69%	0.38%	1.15%	2.69%	0.00%	1.35%
1999	534	93.07%	1.69%	0.19%	0.94%	3.18%	0.00%	0.94%
2000	616	92.86%	2.27%	1.14%	0.65%	2.92%	0.00%	0.16%
2001	665	94.59%	2.41%	0.00%	1.65%	0.90%	0.30%	0.15%
2002	748	93.58%	3.07%	0.00%	0.94%	2.27%	0.00%	0.13%
2003	774	90.57%	3.49%	0.00%	1.29%	2.97%	0.13%	1.55%
2004	848	91.39%	2.00%	0.47%	2.00%	2.71%	0.12%	1.30%
2005	1119	92.40%	3.93%	0.09%	0.71%	1.88%	0.27%	0.71%
2006	1199	92.58%	3.25%	0.17%	1.42%	2.00%	0.08%	0.50%
2007	1230	89.84%	4.23%	0.65%	1.22%	3.33%	0.00%	0.73%
2008	1219	87.86%	5.66%	0.16%	1.97%	3.36%	0.00%	0.98%

ES

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2009	1230	89.84%	4.39%	0.33%	1.63%	3.25%	0.08%	0.49%
2010	1066	90.34%	3.85%	0.47%	1.97%	2.81%	0.00%	0.56%

FI

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	37	91.89%	2.70%	0.00%	0.00%	2.70%	0.00%	2.70%
1981	98	91.84%	2.04%	0.00%	0.00%	4.08%	0.00%	2.04%
1982	93	92.47%	4.30%	0.00%	0.00%	3.23%	0.00%	0.00%
1983	94	91.49%	1.06%	0.00%	1.06%	5.32%	0.00%	1.06%
1984	130	95.38%	2.31%	0.00%	0.00%	2.31%	0.00%	0.00%
1985	166	95.78%	0.00%	0.00%	0.60%	1.81%	0.00%	1.81%
1986	176	89.77%	0.57%	0.00%	1.14%	4.55%	1.14%	2.84%
1987	216	90.28%	2.31%	0.46%	1.39%	2.78%	0.00%	2.78%
1988	286	87.76%	1.75%	0.35%	1.75%	3.15%	0.00%	5.24%
1989	339	86.73%	2.95%	0.00%	2.06%	3.24%	1.18%	3.83%
1990	386	91.45%	2.59%	0.26%	1.81%	1.55%	0.00%	2.33%
1991	411	91.24%	2.92%	0.00%	1.70%	1.46%	0.00%	2.68%

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1992	399	91.98%	2.26%	0.00%	1.50%	1.75%	0.00%	2.51%
1993	507	86.79%	3.94%	0.39%	3.16%	1.58%	0.00%	4.14%
1994	610	89.02%	3.93%	0.16%	2.95%	1.97%	0.16%	1.80%
1995	712	86.38%	2.67%	0.28%	2.25%	6.04%	0.42%	1.97%
1996	754	83.69%	3.45%	0.53%	3.45%	5.97%	0.27%	2.65%
1997	923	79.74%	4.01%	0.87%	4.12%	7.91%	0.65%	2.71%
1998	1147	81.78%	3.23%	0.70%	3.05%	6.54%	0.78%	3.92%
1999	1333	78.39%	4.05%	0.68%	3.60%	7.65%	0.83%	4.80%
2000	1647	75.53%	4.43%	0.49%	2.19%	11.23%	0.61%	5.53%
2001	1723	72.90%	5.22%	0.64%	3.48%	10.91%	0.99%	5.86%
2002	1661	72.13%	5.72%	0.72%	3.67%	11.38%	1.02%	5.36%
2003	1456	72.18%	4.74%	0.48%	4.95%	9.27%	0.41%	7.97%
2004	1574	71.73%	4.83%	1.02%	2.99%	9.53%	1.40%	8.51%
2005	1645	71.91%	3.53%	1.09%	4.50%	7.29%	1.82%	9.85%
2006	1572	69.97%	4.90%	1.84%	4.64%	9.35%	1.02%	8.27%
2007	1736	63.65%	6.16%	0.86%	3.46%	18.49%	1.79%	5.59%
2008	1669	61.71%	7.25%	0.42%	4.13%	19.59%	1.50%	5.39%
2009	1418	65.30%	7.12%	1.13%	4.23%	14.60%	1.62%	5.99%
2010	898	75.72%	4.79%	0.78%	2.45%	9.91%	1.00%	5.35%

FR

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	2225	93.93%	0.63%	0.00%	0.49%	2.02%	0.04%	2.88%
1981	2489	92.81%	0.56%	0.04%	0.88%	2.65%	0.00%	3.05%
1982	2862	92.42%	0.84%	0.00%	0.77%	2.06%	0.00%	3.91%
1983	2953	92.38%	1.12%	0.00%	0.81%	2.91%	0.03%	2.74%
1984	3194	93.27%	0.78%	0.00%	0.91%	3.04%	0.00%	2.00%
1985	3283	92.69%	1.22%	0.03%	1.19%	2.74%	0.00%	2.13%
1986	3738	92.62%	1.02%	0.00%	1.26%	2.43%	0.16%	2.51%
1987	3809	92.89%	1.16%	0.05%	1.23%	2.78%	0.08%	1.81%
1988	4387	91.00%	1.25%	0.05%	1.25%	2.83%	0.02%	3.60%
1989	4781	91.82%	1.25%	0.04%	0.61%	3.01%	0.15%	3.12%
1990	5195	89.99%	1.67%	0.02%	1.19%	3.54%	0.13%	3.45%
1991	4951	90.04%	1.70%	0.08%	1.25%	3.01%	0.02%	3.90%
1992	5056	89.52%	1.98%	0.08%	1.11%	3.54%	0.18%	3.60%
1993	4758	89.05%	1.70%	0.19%	1.35%	4.20%	0.06%	3.45%
1994	4903	87.25%	2.14%	0.16%	1.84%	4.85%	0.16%	3.59%
1995	5081	87.17%	1.91%	0.10%	1.97%	5.06%	0.12%	3.68%
1996	5220	87.07%	2.11%	0.31%	1.82%	4.21%	0.31%	4.18%
1997	5720	84.95%	3.13%	0.21%	1.99%	5.84%	0.45%	3.43%
1998	6425	84.53%	2.65%	0.44%	2.44%	6.38%	0.22%	3.35%
1999	6778	83.43%	2.99%	0.27%	2.30%	6.86%	0.31%	3.84%
2000	7368	82.15%	2.62%	0.33%	2.63%	6.69%	0.27%	5.31%
2001	7349	80.12%	3.17%	0.34%	2.95%	7.54%	0.33%	5.55%
2002	7482	78.75%	3.30%	0.43%	3.14%	7.27%	0.53%	6.58%

FR

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2003	7709	77.65%	3.05%	0.31%	3.24%	6.67%	0.47%	8.61%
2004	8108	78.02%	3.35%	0.41%	2.96%	7.08%	0.28%	7.89%
2005	8446	78.01%	3.50%	0.33%	3.47%	6.74%	0.43%	7.52%
2006	8638	77.31%	3.83%	0.39%	3.36%	6.29%	0.61%	8.21%
2007	8733	78.00%	3.63%	0.41%	3.54%	6.81%	0.57%	7.03%
2008	9122	78.01%	3.89%	0.41%	3.18%	6.83%	0.56%	7.13%
2009	9015	78.49%	3.55%	0.48%	3.58%	7.33%	0.74%	5.82%
2010	6956	79.43%	4.13%	0.36%	2.63%	7.50%	0.56%	5.39%

GB

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	1698	89.28%	0.77%	0.00%	1.53%	3.30%	0.00%	5.12%
1981	2111	89.72%	1.14%	0.09%	1.37%	3.60%	0.00%	4.07%
1982	2408	87.42%	1.29%	0.00%	1.66%	3.95%	0.04%	5.65%
1983	2441	89.88%	0.74%	0.08%	1.80%	3.48%	0.04%	3.97%
1984	2772	88.82%	1.01%	0.18%	1.95%	3.97%	0.32%	3.75%
1985	2887	88.12%	1.14%	0.17%	2.04%	4.47%	0.10%	3.95%

GB

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1986	3190	87.96%	1.25%	0.06%	2.26%	4.48%	0.13%	3.86%
1987	3428	88.27%	1.46%	0.09%	2.04%	4.73%	0.06%	3.35%
1988	3474	85.18%	1.87%	0.09%	2.30%	4.75%	0.06%	5.76%
1989	3962	84.07%	1.67%	0.10%	2.88%	5.12%	0.48%	5.68%
1990	3925	83.67%	2.14%	0.15%	2.73%	5.22%	0.41%	5.68%
1991	3468	83.56%	1.76%	0.17%	3.00%	4.56%	0.14%	6.81%
1992	3386	80.95%	2.01%	0.30%	3.72%	4.61%	0.41%	8.00%
1993	3296	81.10%	2.43%	0.21%	4.19%	5.04%	0.21%	6.83%
1994	3222	80.76%	2.61%	0.31%	3.60%	4.75%	0.25%	7.73%
1995	3363	78.68%	2.44%	0.39%	4.82%	5.56%	0.39%	7.73%
1996	3450	79.13%	3.36%	0.26%	3.97%	4.99%	0.38%	7.91%
1997	3769	78.38%	2.97%	0.24%	4.88%	4.70%	0.64%	8.20%
1998	4040	79.08%	3.24%	0.67%	5.89%	3.86%	0.54%	6.71%
1999	4371	79.68%	3.20%	0.53%	5.10%	4.80%	0.43%	6.25%
2000	4793	80.83%	3.11%	0.58%	5.42%	3.92%	0.46%	5.67%
2001	5174	79.82%	3.46%	0.58%	5.20%	4.83%	0.41%	5.70%
2002	4752	78.79%	4.88%	0.44%	4.36%	5.37%	0.93%	5.24%
2003	4591	79.15%	3.70%	0.83%	4.99%	4.57%	0.65%	6.10%
2004	4554	78.48%	3.71%	0.59%	5.03%	5.14%	0.79%	6.26%
2005	4539	77.29%	3.68%	0.99%	6.10%	4.89%	0.68%	6.37%
2006	4594	78.06%	3.48%	0.83%	5.49%	5.57%	0.67%	5.90%
2007	4696	80.49%	3.32%	0.92%	5.49%	4.56%	0.89%	4.32%
2008	4410	80.23%	3.95%	0.59%	5.19%	5.28%	0.63%	4.13%

GB

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2009	4134	81.06%	3.48%	0.53%	5.49%	4.31%	0.34%	4.79%
2010	3218	81.08%	4.04%	0.47%	5.41%	4.97%	0.37%	3.67%

GR

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	2	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1981	8	87.50%	12.50%	0.00%	0.00%	0.00%	0.00%	0.00%
1982	8	87.50%	12.50%	0.00%	0.00%	0.00%	0.00%	0.00%
1983	5	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1984	10	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1985	8	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1986	4	75.00%	0.00%	25.00%	0.00%	0.00%	0.00%	0.00%
1987	14	92.86%	0.00%	0.00%	7.14%	0.00%	0.00%	0.00%
1988	10	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1989	21	85.71%	9.52%	0.00%	4.76%	0.00%	0.00%	0.00%
1990	23	91.30%	4.35%	0.00%	0.00%	0.00%	0.00%	4.35%
1991	21	90.48%	0.00%	0.00%	0.00%	4.76%	0.00%	4.76%

GR

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1992	26	88.46%	7.69%	0.00%	0.00%	0.00%	0.00%	3.85%
1993	27	88.89%	3.70%	0.00%	3.70%	3.70%	0.00%	0.00%
1994	22	81.82%	9.09%	0.00%	9.09%	0.00%	0.00%	0.00%
1995	20	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1996	25	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1997	33	90.91%	3.03%	0.00%	0.00%	6.06%	0.00%	0.00%
1998	57	80.70%	8.77%	0.00%	3.51%	3.51%	0.00%	3.51%
1999	57	91.23%	3.51%	1.75%	0.00%	1.75%	0.00%	1.75%
2000	45	84.44%	11.11%	0.00%	0.00%	2.22%	0.00%	2.22%
2001	58	84.48%	10.34%	0.00%	3.45%	0.00%	0.00%	1.72%
2002	62	98.39%	1.61%	0.00%	0.00%	0.00%	0.00%	0.00%
2003	58	96.55%	1.72%	0.00%	1.72%	0.00%	0.00%	0.00%
2004	76	94.74%	2.63%	0.00%	1.32%	1.32%	0.00%	0.00%
2005	48	95.83%	2.08%	0.00%	2.08%	0.00%	0.00%	0.00%
2006	92	91.30%	1.09%	0.00%	4.35%	2.17%	1.09%	0.00%
2007	83	92.77%	3.61%	0.00%	3.61%	0.00%	0.00%	0.00%
2008	99	78.79%	8.08%	2.02%	6.06%	4.04%	0.00%	1.01%
2009	82	85.37%	1.22%	1.22%	8.54%	2.44%	0.00%	1.22%
2010	54	75.93%	3.70%	0.00%	5.56%	11.11%	0.00%	3.70%

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	24	62.50%	4.17%	0.00%	0.00%	25.00%	0.00%	8.33%
1981	24	79.17%	0.00%	0.00%	0.00%	12.50%	4.17%	4.17%
1982	14	85.71%	7.14%	0.00%	0.00%	0.00%	0.00%	7.14%
1983	27	62.96%	11.11%	0.00%	0.00%	3.70%	0.00%	22.22%
1984	31	70.97%	3.23%	0.00%	6.45%	12.90%	0.00%	6.45%
1985	34	67.65%	14.71%	2.94%	2.94%	11.76%	0.00%	0.00%
1986	28	67.86%	17.86%	0.00%	10.71%	3.57%	0.00%	0.00%
1987	43	67.44%	4.65%	0.00%	16.28%	6.98%	0.00%	4.65%
1988	57	82.46%	1.75%	0.00%	1.75%	10.53%	1.75%	1.75%
1989	49	79.59%	2.04%	0.00%	2.04%	6.12%	0.00%	10.20%
1990	69	66.67%	8.70%	0.00%	2.90%	17.39%	0.00%	4.35%
1991	65	63.08%	7.69%	0.00%	3.08%	16.92%	1.54%	7.69%
1992	69	65.22%	2.90%	0.00%	2.90%	21.74%	0.00%	7.25%
1993	96	41.67%	7.29%	0.00%	4.17%	30.21%	1.04%	15.63%
1994	109	47.71%	1.83%	0.00%	1.83%	33.94%	1.83%	12.84%
1995	104	46.15%	7.69%	0.96%	2.88%	32.69%	0.96%	8.65%
1996	132	51.52%	2.27%	0.00%	3.03%	23.48%	2.27%	17.42%
1997	164	51.22%	7.93%	0.61%	3.05%	26.22%	0.61%	10.37%
1998	189	51.85%	6.35%	1.59%	3.70%	21.16%	1.06%	14.29%
1999	242	52.48%	3.72%	0.00%	7.44%	17.77%	2.48%	16.12%
2000	300	56.67%	7.67%	0.67%	5.00%	12.00%	1.33%	16.67%
2001	303	44.55%	4.29%	0.33%	1.98%	19.14%	6.93%	22.77%
2002	394	38.58%	3.05%	1.02%	1.52%	23.10%	5.84%	26.90%

IE

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2003	348	36.49%	6.61%	0.57%	3.74%	19.54%	4.02%	29.02%
2004	361	40.44%	5.26%	0.55%	4.16%	26.32%	3.32%	19.94%
2005	383	42.04%	3.39%	0.78%	4.44%	27.15%	1.83%	20.37%
2006	464	35.99%	4.09%	1.72%	7.33%	22.41%	4.53%	23.92%
2007	436	39.45%	4.36%	1.38%	5.73%	27.29%	2.29%	19.50%
2008	463	45.57%	7.56%	1.30%	3.24%	20.30%	3.02%	19.01%
2009	477	45.49%	6.50%	0.42%	3.77%	21.80%	4.40%	17.61%
2010	364	45.05%	6.59%	0.55%	3.85%	17.31%	7.97%	18.68%

IT

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	347	95.39%	1.44%	0.00%	0.58%	0.58%	0.00%	2.02%
1981	630	96.67%	0.79%	0.00%	1.11%	0.63%	0.16%	0.63%
1982	779	96.79%	0.51%	0.00%	0.64%	0.90%	0.13%	1.03%
1983	806	96.15%	0.99%	0.00%	0.74%	0.87%	0.12%	1.12%
1984	1060	96.51%	0.75%	0.00%	0.66%	1.32%	0.00%	0.75%
1985	1158	96.20%	0.78%	0.00%	0.43%	1.04%	0.00%	1.55%

IT

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1986	1396	97.21%	0.93%	0.00%	0.50%	0.14%	0.00%	1.22%
1987	1607	96.52%	1.18%	0.00%	0.56%	1.24%	0.00%	0.50%
1988	1913	96.50%	0.68%	0.00%	0.68%	0.94%	0.16%	1.05%
1989	1974	96.10%	0.76%	0.05%	1.47%	0.96%	0.10%	0.56%
1990	2285	95.89%	1.36%	0.00%	0.83%	1.27%	0.04%	0.61%
1991	2029	95.71%	1.38%	0.00%	0.59%	1.08%	0.00%	1.23%
1992	2302	95.35%	1.09%	0.04%	1.22%	1.00%	0.00%	1.30%
1993	2065	93.95%	1.21%	0.00%	1.45%	1.40%	0.05%	1.94%
1994	2122	94.63%	1.37%	0.05%	1.27%	1.27%	0.05%	1.37%
1995	2124	94.77%	1.22%	0.05%	1.51%	1.74%	0.00%	0.71%
1996	2362	94.45%	1.40%	0.08%	1.19%	1.57%	0.13%	1.19%
1997	2610	93.91%	1.76%	0.04%	1.26%	1.80%	0.15%	1.07%
1998	2954	93.13%	2.51%	0.20%	1.05%	1.69%	0.07%	1.35%
1999	3063	94.06%	1.83%	0.26%	0.75%	1.50%	0.00%	1.60%
2000	3450	94.00%	1.48%	0.17%	1.62%	1.45%	0.00%	1.28%
2001	3646	93.17%	2.00%	0.14%	1.84%	1.65%	0.05%	1.15%
2002	3751	93.20%	1.97%	0.11%	2.16%	1.68%	0.05%	0.83%
2003	4016	94.05%	1.97%	0.17%	1.37%	1.25%	0.00%	1.20%
2004	4100	94.85%	1.68%	0.05%	1.51%	0.90%	0.10%	0.90%
2005	4269	93.44%	1.80%	0.16%	1.78%	1.29%	0.07%	1.45%
2006	4331	94.07%	2.15%	0.23%	1.36%	1.15%	0.05%	0.99%
2007	4423	94.69%	1.76%	0.16%	1.51%	1.02%	0.07%	0.79%
2008	4154	93.96%	2.02%	0.17%	1.61%	1.23%	0.14%	0.87%

IT

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2009	3487	94.18%	2.35%	0.29%	1.52%	0.52%	0.06%	1.09%
2010	2894	94.51%	1.80%	0.28%	1.59%	0.90%	0.07%	0.86%

LU

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	46	43.48%	4.35%	0.00%	0.00%	45.65%	0.00%	6.52%
1981	41	56.10%	7.32%	0.00%	0.00%	34.15%	2.44%	0.00%
1982	54	55.56%	3.70%	0.00%	0.00%	35.19%	0.00%	5.56%
1983	59	49.15%	5.08%	0.00%	0.00%	25.42%	3.39%	16.95%
1984	57	35.09%	8.77%	0.00%	1.75%	35.09%	5.26%	14.04%
1985	58	15.52%	1.72%	0.00%	0.00%	50.00%	5.17%	27.59%
1986	79	26.58%	5.06%	0.00%	0.00%	40.51%	5.06%	22.78%
1987	96	19.79%	2.08%	0.00%	1.04%	41.67%	8.33%	27.08%
1988	70	10.00%	0.00%	0.00%	0.00%	44.29%	4.29%	41.43%
1989	74	18.92%	6.76%	0.00%	0.00%	52.70%	2.70%	18.92%
1990	55	21.82%	7.27%	0.00%	0.00%	41.82%	3.64%	25.45%
1991	55	36.36%	12.73%	0.00%	0.00%	34.55%	7.27%	9.09%

LU

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1992	70	28.57%	8.57%	0.00%	0.00%	35.71%	8.57%	18.57%
1993	65	15.38%	6.15%	0.00%	0.00%	36.92%	3.08%	38.46%
1994	119	14.29%	5.88%	0.00%	0.00%	40.34%	9.24%	30.25%
1995	75	17.33%	9.33%	1.33%	0.00%	40.00%	8.00%	24.00%
1996	85	17.65%	7.06%	1.18%	0.00%	49.41%	9.41%	15.29%
1997	108	16.67%	11.11%	0.00%	0.93%	53.70%	4.63%	12.96%
1998	151	15.23%	7.95%	0.00%	0.00%	45.70%	3.97%	27.15%
1999	165	14.55%	13.33%	0.00%	0.00%	49.09%	1.82%	21.21%
2000	180	14.44%	6.11%	0.56%	0.00%	39.44%	3.89%	35.56%
2001	180	19.44%	5.56%	1.11%	2.22%	45.00%	6.11%	20.56%
2002	195	13.85%	7.18%	0.00%	1.03%	38.46%	3.59%	35.90%
2003	262	9.54%	8.78%	0.38%	0.76%	45.80%	4.58%	30.15%
2004	242	17.36%	11.16%	0.41%	0.41%	42.56%	3.31%	24.79%
2005	328	11.59%	9.45%	0.91%	4.27%	39.94%	5.79%	28.05%
2006	307	15.96%	12.70%	0.33%	0.00%	42.67%	7.82%	20.52%
2007	356	9.83%	10.39%	0.28%	0.00%	53.65%	5.62%	20.22%
2008	343	6.71%	8.45%	0.87%	0.29%	50.15%	4.96%	28.57%
2009	360	10.56%	6.11%	0.28%	0.28%	41.67%	7.50%	33.61%
2010	288	11.11%	6.60%	1.74%	0.00%	49.31%	3.47%	27.78%

NL

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	677	69.28%	2.51%	0.00%	0.74%	20.68%	0.44%	6.35%
1981	838	74.82%	1.91%	0.00%	0.36%	18.74%	0.24%	3.94%
1982	1105	66.15%	1.63%	0.00%	0.45%	24.16%	0.18%	7.42%
1983	1245	65.30%	2.33%	0.00%	0.80%	26.59%	0.08%	4.90%
1984	1385	64.98%	2.24%	0.00%	0.72%	26.86%	0.29%	4.91%
1985	1512	62.90%	2.45%	0.07%	0.60%	24.40%	0.79%	8.80%
1986	1682	60.34%	3.09%	0.06%	0.24%	26.46%	0.65%	9.16%
1987	1822	62.02%	2.74%	0.05%	0.60%	25.80%	0.44%	8.34%
1988	2083	61.64%	3.07%	0.19%	0.86%	25.92%	0.62%	7.68%
1989	2227	60.84%	3.28%	0.22%	0.63%	27.53%	0.72%	6.78%
1990	2399	61.36%	3.13%	0.21%	1.29%	24.59%	0.75%	8.67%
1991	2036	62.23%	2.41%	0.15%	0.88%	23.13%	0.93%	10.27%
1992	2093	60.92%	2.91%	0.14%	1.24%	24.37%	0.91%	9.51%
1993	2124	60.40%	3.53%	0.19%	1.37%	23.02%	1.46%	10.03%
1994	2117	58.53%	3.73%	0.28%	1.37%	23.71%	0.99%	11.38%
1995	2263	54.93%	4.68%	0.27%	2.78%	22.27%	0.93%	14.14%
1996	2420	60.25%	5.00%	0.21%	2.98%	20.08%	0.87%	10.62%
1997	2682	65.14%	3.80%	0.22%	2.27%	17.08%	1.30%	10.18%
1998	2894	66.79%	4.04%	0.21%	2.07%	16.38%	1.21%	9.30%
1999	3208	67.83%	4.61%	0.47%	1.62%	14.81%	1.81%	8.85%
2000	3831	65.91%	4.33%	0.34%	1.77%	14.72%	1.57%	11.35%
2001	4212	67.26%	4.51%	0.26%	1.50%	15.31%	1.97%	9.19%
2002	4665	70.01%	2.87%	0.58%	2.25%	14.53%	1.91%	7.85%

NL

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2003	5199	56.78%	3.44%	0.31%	2.42%	21.10%	1.77%	14.18%
2004	5140	54.79%	3.91%	0.53%	3.00%	22.30%	1.75%	13.74%
2005	5188	56.75%	3.70%	0.52%	2.51%	21.78%	2.10%	12.64%
2006	4934	56.38%	3.91%	0.61%	2.39%	20.21%	2.53%	13.96%
2007	4964	62.65%	4.17%	0.50%	3.06%	13.52%	2.52%	13.58%
2008	4331	60.31%	3.95%	0.65%	2.61%	14.94%	3.42%	14.13%
2009	4470	60.92%	4.00%	0.43%	2.26%	15.41%	2.73%	14.25%
2010	3199	65.65%	4.78%	0.75%	1.91%	14.00%	2.19%	10.72%

PT

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1981	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1982	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1983	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1984	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1985	2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

PT

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1986	2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1987	6	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1988	8	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1989	4	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1990	5	80.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1991	6	66.67%	0.00%	0.00%	16.67%	0.00%	0.00%	16.67%
1992	18	44.44%	5.56%	0.00%	5.56%	0.00%	0.00%	44.44%
1993	16	62.50%	0.00%	0.00%	0.00%	25.00%	0.00%	12.50%
1994	23	65.22%	8.70%	0.00%	0.00%	26.09%	0.00%	0.00%
1995	32	40.63%	0.00%	0.00%	0.00%	56.25%	0.00%	3.13%
1996	20	50.00%	10.00%	0.00%	0.00%	25.00%	0.00%	15.00%
1997	24	50.00%	8.33%	0.00%	0.00%	37.50%	0.00%	4.17%
1998	22	59.09%	0.00%	0.00%	0.00%	36.36%	0.00%	4.55%
1999	38	68.42%	5.26%	0.00%	0.00%	21.05%	2.63%	2.63%
2000	35	57.14%	5.71%	2.86%	5.71%	17.14%	2.86%	8.57%
2001	46	82.61%	4.35%	0.00%	0.00%	6.52%	2.17%	4.35%
2002	42	50.00%	2.38%	2.38%	2.38%	38.10%	0.00%	4.76%
2003	52	75.00%	3.85%	3.85%	5.77%	9.62%	0.00%	1.92%
2004	64	75.00%	6.25%	1.56%	0.00%	15.63%	1.56%	0.00%
2005	68	72.06%	4.41%	0.00%	2.94%	14.71%	2.94%	2.94%
2006	93	78.49%	5.38%	2.15%	3.23%	7.53%	0.00%	3.23%
2007	86	77.91%	11.63%	2.33%	2.33%	3.49%	0.00%	2.33%
2008	84	84.52%	3.57%	1.19%	1.19%	7.14%	0.00%	2.38%

PT

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2009	102	77.45%	8.82%	0.98%	3.92%	7.84%	0.00%	0.98%
2010	32	84.38%	9.38%	3.13%	3.13%	0.00%	0.00%	0.00%

SE

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	503	91.65%	1.79%	0.00%	1.79%	3.18%	0.00%	1.59%
1981	621	93.08%	1.29%	0.32%	0.64%	3.70%	0.00%	0.97%
1982	686	94.02%	1.75%	0.15%	0.87%	2.04%	0.00%	1.17%
1983	827	92.99%	0.97%	0.12%	0.97%	2.90%	0.24%	1.81%
1984	846	91.13%	0.83%	0.00%	0.95%	4.49%	0.00%	2.60%
1985	932	89.38%	1.39%	0.00%	1.29%	3.97%	0.43%	3.54%
1986	941	92.03%	1.17%	0.00%	1.49%	4.25%	0.00%	1.06%
1987	873	88.66%	2.06%	0.11%	2.18%	4.47%	0.00%	2.52%
1988	925	88.43%	1.84%	0.00%	1.73%	5.73%	0.00%	2.27%
1989	900	86.33%	1.22%	0.22%	3.11%	4.22%	0.11%	4.78%
1990	952	89.29%	1.79%	0.00%	1.16%	3.47%	0.21%	4.10%
1991	923	85.27%	2.38%	0.11%	3.25%	4.44%	0.22%	4.33%

SE

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1992	969	86.27%	3.30%	0.10%	2.17%	4.85%	0.31%	2.99%
1993	1053	87.08%	3.04%	0.00%	1.71%	4.18%	0.28%	3.70%
1994	1172	84.13%	2.90%	0.17%	2.65%	5.55%	0.51%	4.10%
1995	1438	81.08%	3.89%	0.28%	1.74%	8.14%	0.49%	4.38%
1996	1635	78.59%	3.36%	0.24%	2.26%	10.76%	0.49%	4.28%
1997	1977	78.35%	3.29%	0.20%	1.97%	11.79%	0.25%	4.15%
1998	2240	77.77%	3.66%	0.27%	3.13%	11.25%	0.40%	3.53%
1999	2430	71.93%	4.07%	0.70%	4.07%	14.32%	0.37%	4.53%
2000	2604	72.27%	3.84%	0.69%	3.46%	13.63%	1.08%	5.03%
2001	2649	69.35%	4.79%	0.19%	3.32%	14.35%	1.81%	6.19%
2002	2581	67.76%	5.35%	0.39%	4.61%	15.23%	1.32%	5.35%
2003	2428	70.47%	3.67%	0.29%	2.59%	17.59%	1.03%	4.37%
2004	2697	67.37%	4.75%	0.37%	2.63%	14.57%	1.08%	9.23%
2005	2849	66.27%	5.58%	0.42%	2.95%	14.22%	1.12%	9.44%
2006	3046	64.02%	5.38%	0.33%	3.78%	13.99%	1.08%	11.42%
2007	3188	66.94%	5.24%	0.56%	4.14%	12.95%	0.82%	9.35%
2008	3384	63.92%	6.41%	0.65%	4.61%	14.45%	0.80%	9.16%
2009	2772	67.03%	4.80%	0.58%	4.08%	13.02%	0.72%	9.78%
2010	1532	69.58%	3.59%	0.52%	3.20%	11.10%	0.85%	11.16%

BG

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1981	7	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1982	7	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1983	14	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1984	15	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1985	23	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1986	19	89.47%	5.26%	0.00%	5.26%	0.00%	0.00%	0.00%
1987	11	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1988	25	80.00%	0.00%	0.00%	16.00%	0.00%	0.00%	4.00%
1989	15	93.33%	0.00%	0.00%	0.00%	0.00%	0.00%	6.67%
1990	12	83.33%	8.33%	0.00%	8.33%	0.00%	0.00%	0.00%
1991	3	66.67%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%
1992	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1993	7	85.71%	0.00%	0.00%	14.29%	0.00%	0.00%	0.00%
1994	3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1995	6	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1996	4	75.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1997	6	66.67%	0.00%	0.00%	0.00%	33.33%	0.00%	0.00%
1998	6	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1999	5	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2000	9	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2001	4	75.00%	0.00%	0.00%	25.00%	0.00%	0.00%	0.00%
2002	16	75.00%	0.00%	0.00%	12.50%	6.25%	0.00%	6.25%
2003	20	90.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%

BG

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2004	13	92.31%	0.00%	0.00%	0.00%	7.69%	0.00%	0.00%
2005	11	72.73%	9.09%	0.00%	0.00%	9.09%	0.00%	9.09%
2006	14	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2007	13	84.62%	7.69%	0.00%	7.69%	0.00%	0.00%	0.00%
2008	12	58.33%	0.00%	0.00%	0.00%	33.33%	0.00%	8.33%
2009	16	81.25%	12.50%	0.00%	0.00%	6.25%	0.00%	0.00%
2010	7	57.14%	0.00%	14.29%	0.00%	28.57%	0.00%	0.00%

CY

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1983	1	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
1985	1	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
1986	2	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
1987	1	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
1988	2	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%
1989	2	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%

CY

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1990	3	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
1991	9	22.22%	0.00%	0.00%	0.00%	77.78%	0.00%	0.00%
1992	6	16.67%	0.00%	0.00%	0.00%	66.67%	0.00%	16.67%
1993	5	40.00%	0.00%	0.00%	0.00%	60.00%	0.00%	0.00%
1994	4	0.00%	0.00%	0.00%	0.00%	75.00%	0.00%	25.00%
1995	10	20.00%	0.00%	0.00%	0.00%	30.00%	10.00%	40.00%
1996	17	0.00%	0.00%	0.00%	0.00%	23.53%	5.88%	70.59%
1997	11	0.00%	0.00%	0.00%	0.00%	63.64%	0.00%	36.36%
1998	10	20.00%	0.00%	0.00%	0.00%	40.00%	10.00%	30.00%
1999	4	25.00%	0.00%	0.00%	0.00%	75.00%	0.00%	0.00%
2000	27	18.52%	0.00%	0.00%	0.00%	51.85%	11.11%	18.52%
2001	37	10.81%	5.41%	0.00%	0.00%	43.24%	5.41%	35.14%
2002	17	29.41%	5.88%	0.00%	0.00%	41.18%	0.00%	23.53%
2003	21	4.76%	4.76%	0.00%	0.00%	71.43%	0.00%	19.05%
2004	38	7.89%	0.00%	0.00%	2.63%	57.89%	10.53%	21.05%
2005	42	16.67%	0.00%	0.00%	2.38%	40.48%	4.76%	35.71%
2006	38	31.58%	0.00%	0.00%	0.00%	28.95%	0.00%	39.47%
2007	62	9.68%	0.00%	0.00%	0.00%	53.23%	3.23%	33.87%
2008	39	20.51%	2.56%	0.00%	0.00%	51.28%	0.00%	25.64%
2009	32	21.88%	0.00%	0.00%	0.00%	25.00%	18.75%	34.38%
2010	43	18.60%	2.33%	0.00%	0.00%	18.60%	4.65%	55.81%

CZ

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1983	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1985	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1986	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1987	3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1988	12	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1989	14	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1990	16	12.50%	0.00%	0.00%	0.00%	0.00%	0.00%	87.50%
1991	12	8.33%	0.00%	0.00%	0.00%	0.00%	16.67%	75.00%
1992	14	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	85.71%
1993	20	70.00%	10.00%	0.00%	0.00%	5.00%	0.00%	15.00%
1994	15	80.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1995	13	92.31%	0.00%	0.00%	0.00%	7.69%	0.00%	0.00%
1996	14	64.29%	28.57%	0.00%	0.00%	0.00%	0.00%	7.14%
1997	21	85.71%	4.76%	0.00%	4.76%	4.76%	0.00%	0.00%
1998	41	80.49%	7.32%	2.44%	0.00%	2.44%	0.00%	7.32%
1999	40	72.50%	12.50%	0.00%	2.50%	10.00%	0.00%	2.50%
2000	47	95.74%	4.26%	0.00%	0.00%	0.00%	0.00%	0.00%
2001	49	87.76%	2.04%	0.00%	6.12%	4.08%	0.00%	0.00%
2002	51	82.35%	11.76%	0.00%	3.92%	1.96%	0.00%	0.00%
2003	68	80.88%	8.82%	0.00%	1.47%	8.82%	0.00%	0.00%
2004	98	80.61%	13.27%	0.00%	2.04%	2.04%	1.02%	1.02%
2005	101	74.26%	14.85%	0.00%	0.99%	8.91%	0.00%	0.99%
2006	85	75.29%	16.47%	0.00%	3.53%	3.53%	0.00%	1.18%

CZ

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2007	111	82.88%	8.11%	0.00%	3.60%	4.50%	0.00%	0.90%
2008	137	84.67%	8.03%	0.73%	3.65%	2.92%	0.00%	0.00%
2009	142	90.14%	7.04%	0.70%	1.41%	0.00%	0.00%	0.70%
2010	117	83.76%	10.26%	0.00%	1.71%	1.71%	0.00%	2.56%

EE

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1989	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1992	1	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1993	2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1994	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1996	3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1997	4	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%
1998	4	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1999	2	50.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%
2000	2	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2001	5	60.00%	0.00%	0.00%	0.00%	20.00%	0.00%	20.00%

EE

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2002	7	71.43%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%
2003	6	66.67%	0.00%	0.00%	0.00%	16.67%	0.00%	16.67%
2004	5	60.00%	0.00%	0.00%	20.00%	0.00%	0.00%	20.00%
2005	7	71.43%	0.00%	0.00%	14.29%	14.29%	0.00%	0.00%
2006	10	50.00%	0.00%	0.00%	10.00%	20.00%	0.00%	20.00%
2007	19	78.95%	10.53%	5.26%	0.00%	0.00%	0.00%	5.26%
2008	14	71.43%	14.29%	0.00%	7.14%	0.00%	0.00%	7.14%
2009	29	75.86%	10.34%	0.00%	6.90%	6.90%	0.00%	0.00%
2010	20	85.00%	10.00%	0.00%	0.00%	5.00%	0.00%	0.00%

HU

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	46	97.83%	2.17%	0.00%	0.00%	0.00%	0.00%	0.00%
1981	86	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1982	117	99.15%	0.85%	0.00%	0.00%	0.00%	0.00%	0.00%
1983	123	97.56%	1.63%	0.00%	0.00%	0.00%	0.00%	0.81%
1984	121	96.69%	2.48%	0.00%	0.00%	0.00%	0.00%	0.83%

HU

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1985	117	97.44%	2.56%	0.00%	0.00%	0.00%	0.00%	0.00%
1986	109	97.25%	0.92%	0.00%	1.83%	0.00%	0.00%	0.00%
1987	102	99.02%	0.00%	0.00%	0.00%	0.98%	0.00%	0.00%
1988	103	98.06%	0.97%	0.00%	0.97%	0.00%	0.00%	0.00%
1989	89	94.38%	1.12%	0.00%	3.37%	0.00%	0.00%	1.12%
1990	89	93.26%	3.37%	1.12%	1.12%	0.00%	0.00%	1.12%
1991	57	98.25%	0.00%	0.00%	1.75%	0.00%	0.00%	0.00%
1992	51	94.12%	3.92%	0.00%	1.96%	0.00%	0.00%	0.00%
1993	42	92.86%	4.76%	0.00%	2.38%	0.00%	0.00%	0.00%
1994	41	87.80%	2.44%	0.00%	7.32%	2.44%	0.00%	0.00%
1995	38	78.95%	2.63%	2.63%	13.16%	0.00%	2.63%	0.00%
1996	44	88.64%	2.27%	0.00%	2.27%	0.00%	0.00%	6.82%
1997	52	82.69%	1.92%	0.00%	3.85%	5.77%	1.92%	3.85%
1998	55	94.55%	3.64%	0.00%	0.00%	0.00%	1.82%	0.00%
1999	48	95.83%	0.00%	0.00%	2.08%	0.00%	0.00%	2.08%
2000	84	83.33%	3.57%	0.00%	4.76%	5.95%	0.00%	2.38%
2001	62	75.81%	4.84%	1.61%	8.06%	4.84%	0.00%	4.84%
2002	96	85.42%	3.13%	0.00%	4.17%	4.17%	0.00%	3.13%

HU

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2003	65	78.46%	3.08%	0.00%	7.69%	6.15%	0.00%	4.62%
2004	94	85.11%	1.06%	0.00%	2.13%	5.32%	2.13%	4.26%
2005	101	74.26%	3.96%	0.99%	10.89%	6.93%	0.99%	1.98%
2006	95	78.95%	6.32%	0.00%	3.16%	5.26%	1.05%	5.26%
2007	108	84.26%	1.85%	0.00%	2.78%	6.48%	0.93%	3.70%
2008	115	84.35%	2.61%	0.87%	4.35%	4.35%	0.00%	3.48%
2009	94	73.40%	1.06%	1.06%	8.51%	10.64%	0.00%	5.32%
2010	71	74.65%	8.45%	5.63%	2.82%	8.45%	0.00%	0.00%

LT

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1989	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1994	2	50.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%
1995	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1996	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1997	2	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%
2001	4	25.00%	0.00%	0.00%	50.00%	0.00%	0.00%	25.00%

LT

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2002	4	75.00%	0.00%	0.00%	0.00%	25.00%	0.00%	0.00%
2003	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2004	4	75.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%
2005	5	80.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2006	7	42.86%	14.29%	0.00%	14.29%	28.57%	0.00%	0.00%
2007	10	80.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%
2008	11	81.82%	9.09%	0.00%	9.09%	0.00%	0.00%	0.00%
2009	13	92.31%	0.00%	0.00%	7.69%	0.00%	0.00%	0.00%
2010	6	83.33%	0.00%	0.00%	16.67%	0.00%	0.00%	0.00%

LV

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1983	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1984	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1985	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1986	3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1987	2	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	50.00%

LV

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1988	2	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	50.00%
1989	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1990	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1992	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1993	2	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%
1996	2	50.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%
1997	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1998	3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1999	3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2000	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2001	2	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2002	3	66.67%	0.00%	0.00%	0.00%	33.33%	0.00%	0.00%
2003	5	60.00%	0.00%	0.00%	20.00%	20.00%	0.00%	0.00%
2004	7	57.14%	0.00%	0.00%	14.29%	14.29%	0.00%	14.29%
2005	10	70.00%	10.00%	0.00%	0.00%	10.00%	0.00%	10.00%
2006	10	70.00%	0.00%	0.00%	10.00%	0.00%	0.00%	20.00%
2007	19	68.42%	0.00%	0.00%	15.79%	5.26%	0.00%	10.53%
2008	22	77.27%	0.00%	4.55%	9.09%	4.55%	0.00%	4.55%
2009	10	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2010	20	80.00%	0.00%	0.00%	10.00%	10.00%	0.00%	0.00%

MT

APPY	Total # EPO patents	(1) DOMESTIC ONLY	(2a) HYBRID_ domestic area only	(2b) HYBRID_ domestic and foreign area	(2c) HYBRID_ foreign area only	(3a) FOREIGN_ domestic area only	(3b) FOREIGN_ domestic and foreign area	(3c) FOREIGN_ foreign area only
1988	1	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
1990	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1991	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1992	2	50.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%
1993	2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1994	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1995	1	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
1996	3	66.67%	0.00%	0.00%	0.00%	0.00%	0.00%	33.33%
1997	3	33.33%	0.00%	0.00%	0.00%	66.67%	0.00%	0.00%
1998	2	50.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%
1999	9	22.22%	11.11%	0.00%	0.00%	33.33%	0.00%	33.33%
2000	13	46.15%	0.00%	0.00%	0.00%	38.46%	0.00%	15.38%
2001	10	40.00%	10.00%	0.00%	10.00%	30.00%	0.00%	10.00%
2002	13	23.08%	7.69%	0.00%	0.00%	30.77%	0.00%	38.46%
2003	5	60.00%	0.00%	0.00%	0.00%	20.00%	0.00%	20.00%
2004	13	46.15%	0.00%	0.00%	0.00%	46.15%	0.00%	7.69%
2005	25	8.00%	16.00%	0.00%	0.00%	60.00%	12.00%	4.00%
2006	27	3.70%	25.93%	0.00%	0.00%	51.85%	3.70%	14.81%
2007	16	12.50%	0.00%	0.00%	0.00%	50.00%	0.00%	37.50%
2008	18	11.11%	5.56%	0.00%	0.00%	38.89%	0.00%	44.44%
2009	26	23.08%	0.00%	0.00%	0.00%	38.46%	3.85%	34.62%
2010	16	12.50%	0.00%	0.00%	0.00%	50.00%	18.75%	18.75%

PL

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1980	16	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1981	20	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1982	5	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1983	14	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1984	31	96.77%	3.23%	0.00%	0.00%	0.00%	0.00%	0.00%
1985	15	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1986	18	94.44%	5.56%	0.00%	0.00%	0.00%	0.00%	0.00%
1987	27	96.30%	3.70%	0.00%	0.00%	0.00%	0.00%	0.00%
1988	25	96.00%	4.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1989	19	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1990	11	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1991	8	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1992	9	77.78%	11.11%	0.00%	11.11%	0.00%	0.00%	0.00%
1993	7	42.86%	0.00%	0.00%	42.86%	0.00%	0.00%	14.29%
1994	10	80.00%	10.00%	0.00%	10.00%	0.00%	0.00%	0.00%
1995	13	84.62%	7.69%	0.00%	7.69%	0.00%	0.00%	0.00%
1996	9	66.67%	11.11%	0.00%	22.22%	0.00%	0.00%	0.00%
1997	18	66.67%	22.22%	5.56%	0.00%	5.56%	0.00%	0.00%
1998	26	76.92%	11.54%	3.85%	3.85%	3.85%	0.00%	0.00%
1999	23	78.26%	8.70%	0.00%	0.00%	8.70%	0.00%	4.35%
2000	27	77.78%	0.00%	0.00%	11.11%	11.11%	0.00%	0.00%
2001	28	96.43%	0.00%	0.00%	3.57%	0.00%	0.00%	0.00%
2002	51	80.39%	3.92%	0.00%	15.69%	0.00%	0.00%	0.00%

PL

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2003	68	79.41%	10.29%	1.47%	8.82%	0.00%	0.00%	0.00%
2004	97	87.63%	5.15%	1.03%	3.09%	2.06%	0.00%	1.03%
2005	95	78.95%	11.58%	1.05%	4.21%	3.16%	0.00%	1.05%
2006	110	87.27%	6.36%	0.91%	1.82%	2.73%	0.00%	0.91%
2007	105	87.62%	4.76%	0.95%	1.90%	4.76%	0.00%	0.00%
2008	181	90.06%	4.42%	0.00%	3.87%	1.10%	0.00%	0.55%
2009	176	83.52%	6.82%	0.00%	2.27%	4.55%	0.57%	2.27%
2010	183	85.25%	7.10%	0.55%	1.09%	4.92%	0.00%	1.09%

RO

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1981	9	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1982	6	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1983	2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1984	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1985	2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1986	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

RO

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1990	2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1991	3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1992	3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1993	2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1994	2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1995	6	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1996	7	85.71%	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%
1997	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1998	12	41.67%	16.67%	0.00%	0.00%	0.00%	41.67%	0.00%
1999	3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2000	5	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2001	4	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2002	11	81.82%	9.09%	0.00%	0.00%	0.00%	0.00%	9.09%
2003	5	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2004	14	92.86%	0.00%	0.00%	0.00%	7.14%	0.00%	0.00%
2005	13	69.23%	7.69%	0.00%	23.08%	0.00%	0.00%	0.00%
2006	19	78.95%	0.00%	0.00%	10.53%	10.53%	0.00%	0.00%
2007	8	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2008	7	71.43%	14.29%	0.00%	0.00%	14.29%	0.00%	0.00%
2009	11	90.91%	0.00%	0.00%	0.00%	9.09%	0.00%	0.00%
2010	12	50.00%	8.33%	8.33%	8.33%	16.67%	0.00%	8.33%

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1984	1	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
1985	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1986	1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1987	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1988	7	14.29%	0.00%	0.00%	0.00%	0.00%	0.00%	85.71%
1989	6	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	66.67%
1990	5	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1991	5	60.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.00%
1992	7	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%	71.43%
1993	15	80.00%	6.67%	0.00%	0.00%	0.00%	0.00%	13.33%
1994	19	89.47%	10.53%	0.00%	0.00%	0.00%	0.00%	0.00%
1995	18	77.78%	22.22%	0.00%	0.00%	0.00%	0.00%	0.00%
1996	21	80.95%	4.76%	0.00%	4.76%	4.76%	0.00%	4.76%
1997	26	76.92%	15.38%	0.00%	0.00%	3.85%	0.00%	3.85%
1998	14	78.57%	0.00%	0.00%	0.00%	21.43%	0.00%	0.00%
1999	39	84.62%	7.69%	0.00%	0.00%	5.13%	0.00%	2.56%
2000	36	97.22%	2.78%	0.00%	0.00%	0.00%	0.00%	0.00%
2001	27	85.19%	11.11%	0.00%	0.00%	3.70%	0.00%	0.00%
2002	41	87.80%	2.44%	0.00%	0.00%	2.44%	0.00%	7.32%
2003	54	92.59%	1.85%	0.00%	1.85%	3.70%	0.00%	0.00%
2004	71	92.96%	2.82%	0.00%	0.00%	1.41%	0.00%	2.82%
2005	99	91.92%	5.05%	0.00%	1.01%	0.00%	0.00%	2.02%
2006	98	84.69%	9.18%	0.00%	1.02%	4.08%	0.00%	1.02%

SI

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
2007	94	82.98%	9.57%	0.00%	4.26%	3.19%	0.00%	0.00%
2008	98	84.69%	6.12%	1.02%	6.12%	0.00%	0.00%	2.04%
2009	122	86.07%	7.38%	0.00%	3.28%	1.64%	0.00%	1.64%
2010	85	87.06%	5.88%	1.18%	2.35%	2.35%	0.00%	1.18%

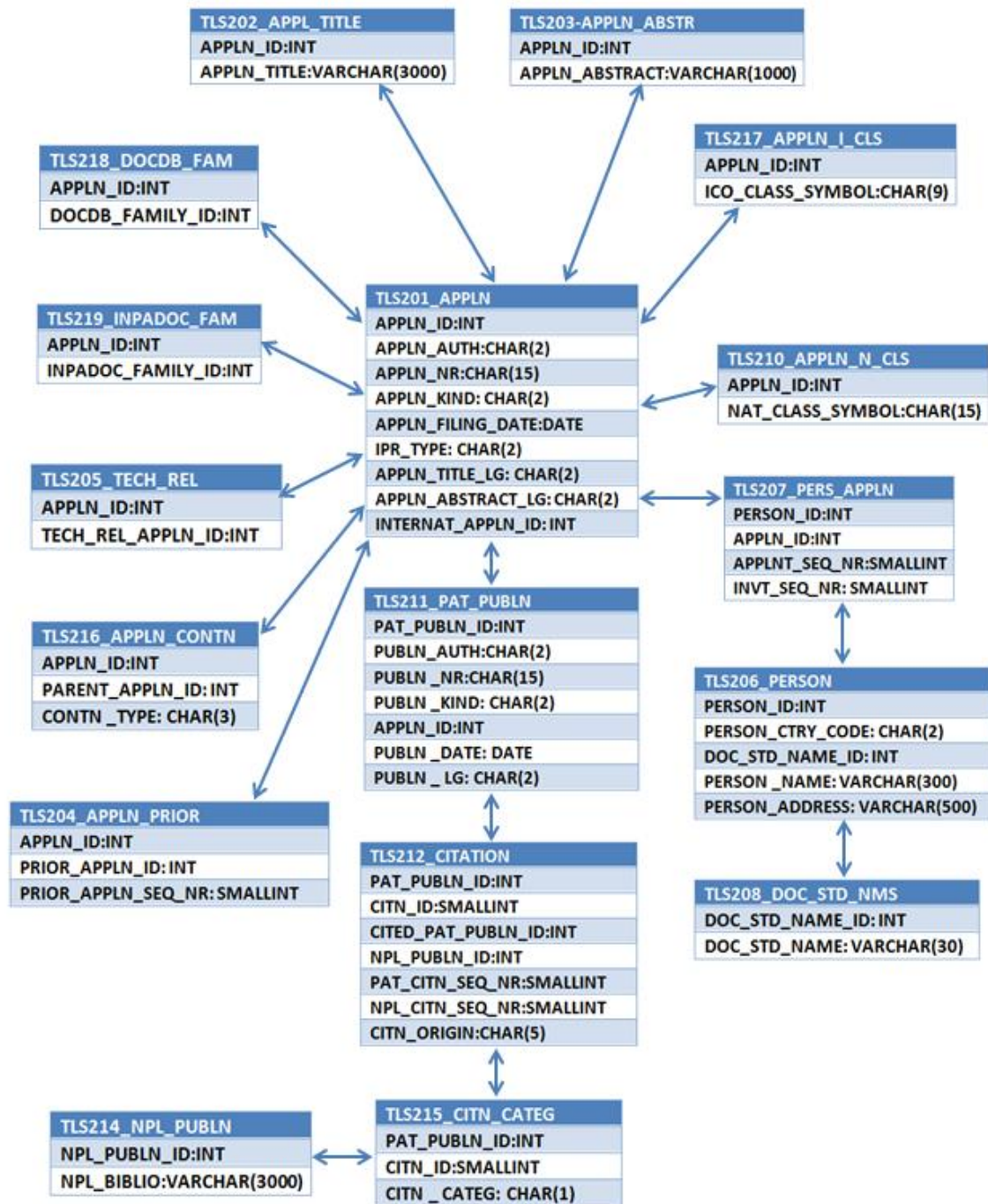
SK

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1988	4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1989	3	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1990	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1991	2	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
1993	6	66.67%	16.67%	0.00%	0.00%	0.00%	0.00%	16.67%
1994	5	60.00%	40.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1995	4	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1996	6	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1997	8	75.00%	12.50%	0.00%	0.00%	0.00%	12.50%	0.00%
1998	10	80.00%	10.00%	0.00%	0.00%	10.00%	0.00%	0.00%

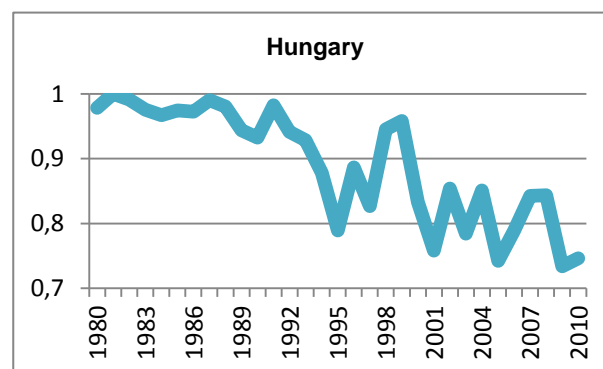
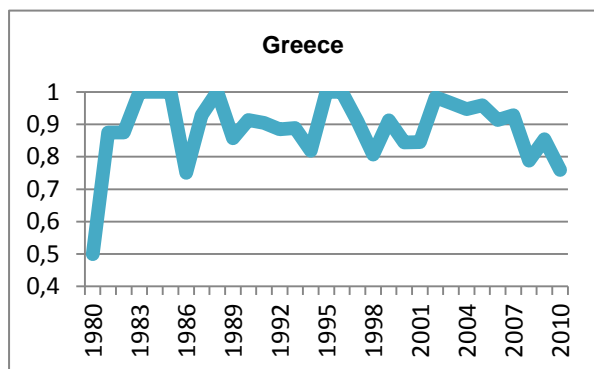
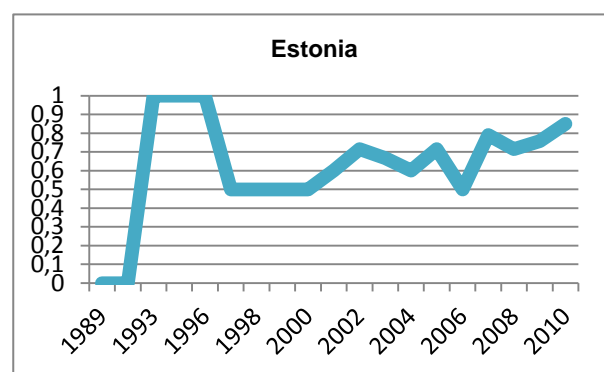
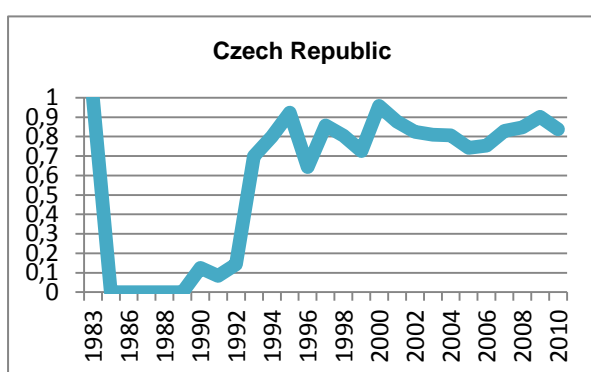
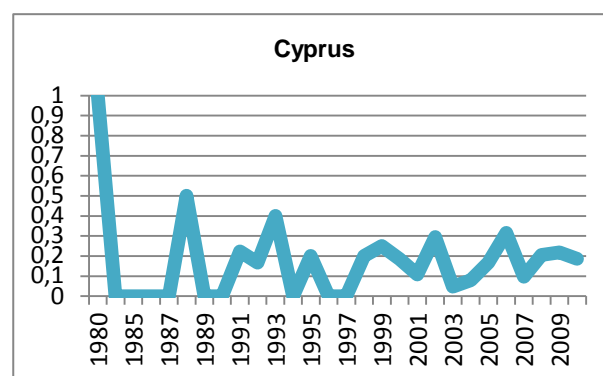
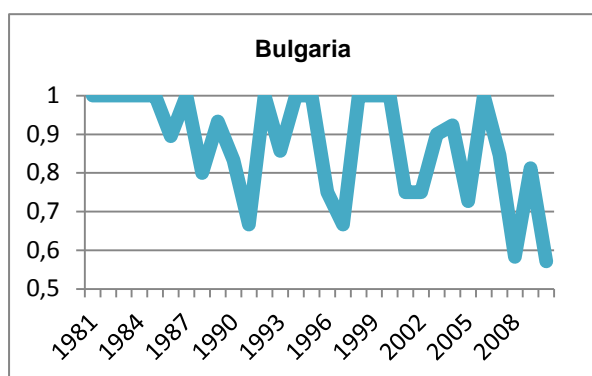
SK

		(1)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
APPY	Total # EPO patents	DOMESTIC ONLY	HYBRID_ domestic area only	HYBRID_ domestic and foreign area	HYBRID_ foreign area only	FOREIGN_ domestic area only	FOREIGN_ domestic and foreign area	FOREIGN_ foreign area only
1999	8	75.00%	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2000	13	92.31%	7.69%	0.00%	0.00%	0.00%	0.00%	0.00%
2001	7	71.43%	28.57%	0.00%	0.00%	0.00%	0.00%	0.00%
2002	9	55.56%	11.11%	0.00%	0.00%	33.33%	0.00%	0.00%
2003	18	66.67%	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
2004	19	78.95%	5.26%	0.00%	5.26%	10.53%	0.00%	0.00%
2005	18	88.89%	0.00%	0.00%	0.00%	11.11%	0.00%	0.00%
2006	17	70.59%	17.65%	0.00%	5.88%	5.88%	0.00%	0.00%
2007	25	88.00%	8.00%	0.00%	0.00%	4.00%	0.00%	0.00%
2008	24	66.67%	4.17%	0.00%	0.00%	20.83%	0.00%	8.33%
2009	19	89.47%	0.00%	0.00%	0.00%	10.53%	0.00%	0.00%
2010	21	66.67%	14.29%	0.00%	0.00%	19.05%	0.00%	0.00%

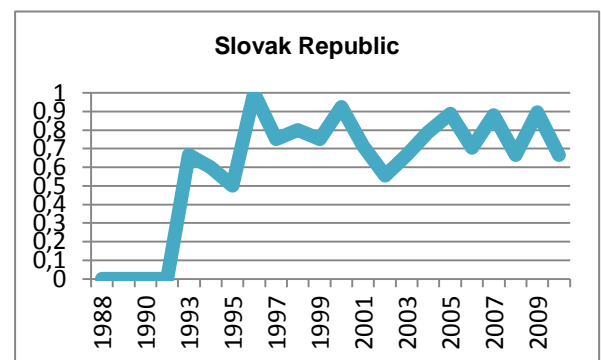
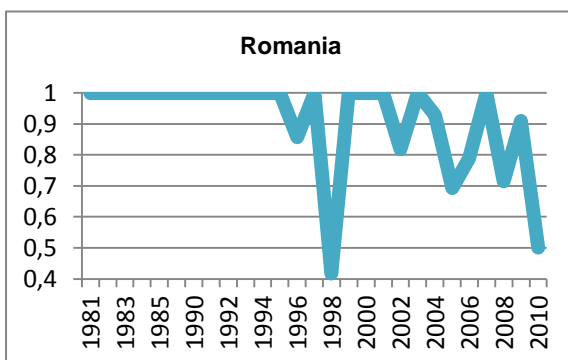
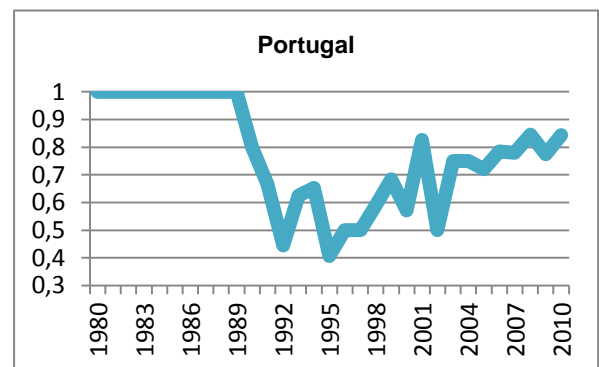
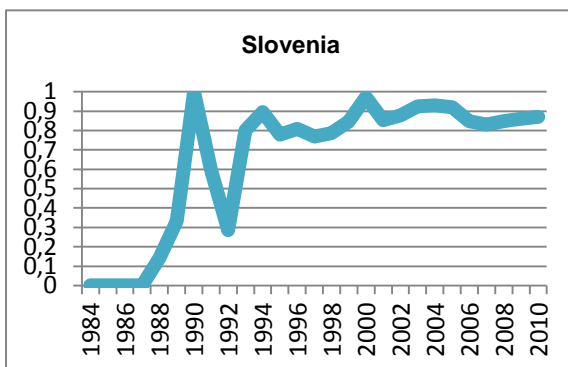
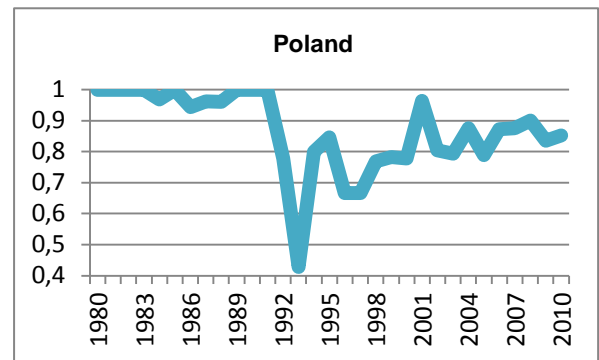
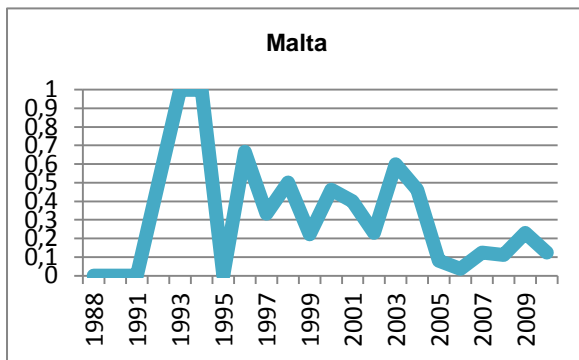
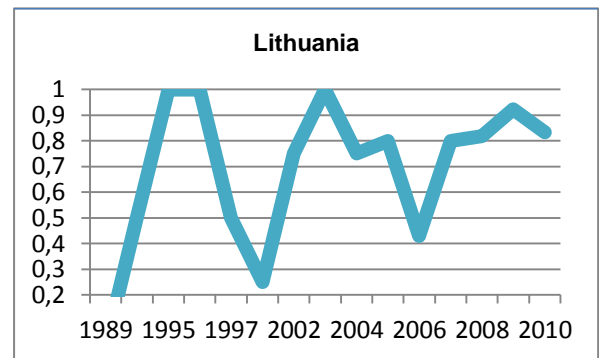
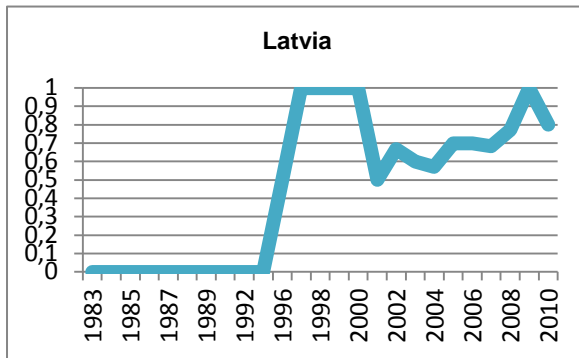
Appendix 1: Patstat relational diagram



Annex 2: Graphical breakdown of domestic share by country⁶



⁶ Countries with insufficient information on volumes of patents.



Annex 3: Regression results

	Period	R ²	β^7	Average domestic share first 3 years	Average domestic share last 3 years
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DECREASING TREND IN INTERNATIO- NALIZATION

Portugal	1980-2010	0,2261	-0,0101***	100%	82,12%
threshold = 50	2003-2009	0,5716	0,0137**	74,02%	82,12%

NO CLEAR TREND IN INTERNATIO- NALIZATION

Bulgaria	1981-2010	0,2493	-0,0078***	100%	65,58%
threshold = 50	/	/	/	/	/
Cyprus	1980 + 1983 + (1985-2010)	0,0161	-0,0031 (n.s.)	33,33%	20,33%
threshold = 50	/	/	/	/	/
Czech Republic⁸	1983 + (1985-2010)	0,4546	0,0313***	33,33%	86,19%
threshold = 50	2002-2010	0,2273	0,0084 (n.s.)	81,28%	86,19%
Estonia⁹	1989 + (1992-1994) + (1996-2010)	0,1374	0,0169 (n.s.)	33,33%	77,43%
threshold = 50	/	/	/	/	/
Greece	1980-2010	0,0040	0,0007 (n.s.)	75%	80,03%
threshold = 50	2001-2010	0,3930	-0,0162 (n.s.)	93,14%	80,03%
Hungary	1980-2010	0,7349	-0,0083***	98,99%	77,47%
threshold = 50	2000-2010	0,1023	-0,0049 (n.s.)	81,52%	77,47%
Latvia	(1983-1990) + (1992-1993) + (1996-2010)	0,6706	0,0389***	0%	85,76%
threshold = 50	/	/	/	/	/
Lithuania	1989 + (1994-1997) + (2001-2010)	0,2036	0,0213 (n.s.)	50%	85,82%
threshold = 50	/	/	/	/	/
Malta	1988 + (1990-2010)	0,0348	-0,0086 (n.s.)	0%	15,56%
threshold = 50	/	/	/	/	/
Poland	1980-2010	0,1861	-0,0062**	100%	86,27%
threshold = 50	2002-2010	0,2565	0,0075 (n.s.)	82,48%	86,27%
Romania	(1981-1986) + (1990-2010)	0,2492	-0,0090***	100%	70,78%
threshold = 50	/	/	/	/	/
Slovak Republic¹⁰	1988-2010	0,4907	0,0330***	0%	74,27%
threshold = 50	/	/	/	/	/
Slovenia	1984-2010	0,5966	0,0337***	0%	85,94%
threshold = 50	2003-2010	0,4932	-0,0115 (n.s.)	92,49%	85,94%

⁷ ** = $p < 0.05$; *** = $p < 0.01$; n.s. = non-significant

⁸ Independent since 1993.

⁹ Restored independence since 1991.

¹⁰ Independent since 1993.

European Commission

Intra-European cooperation compared to international collaboration

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In this report, we analyze the evolution of international collaboration, measured by co-inventor data. We investigate whether European countries have relied increasingly on international inventor teams when developing technology, and whether – in the wake of the European Research Area – this increase is mainly accounted for by cross-border collaboration between EU27 countries.

The results show an increasing international collaboration trend for all considered world areas. Currently, in Europe, about 20% of patents have foreign inventors (compared to 8% in 1980). The growth in international collaboration displays a consistent trend over the whole time period considered (1980 – 2010). Collaborations with foreign inventors show a clear tendency of focusing on inventors from countries within EU27 borders.

Studies and reports

